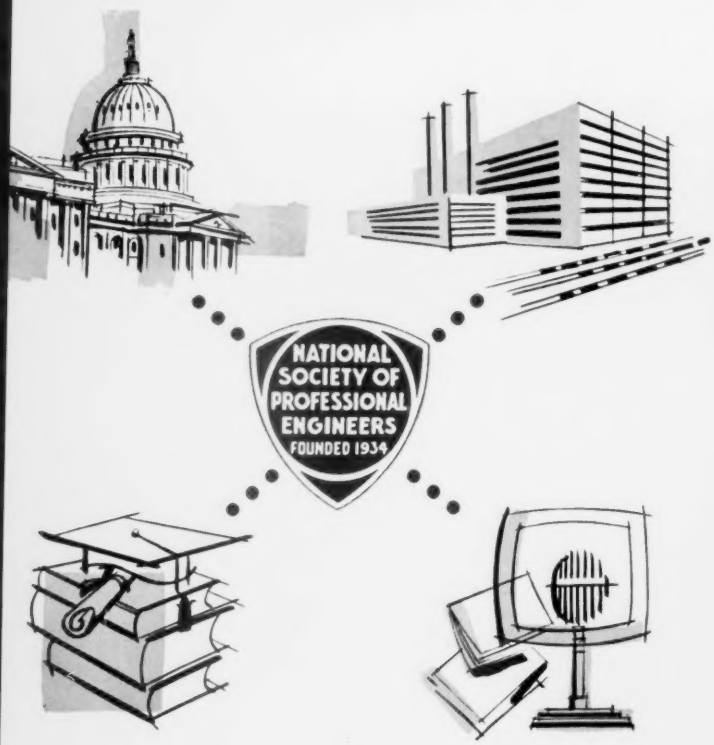
JULY, 1956

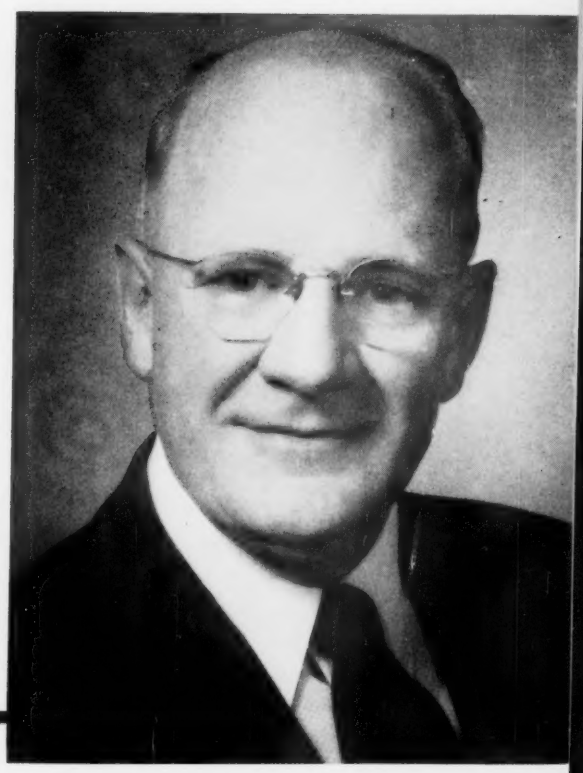
American Engineer

IN THIS ISSUE

- A Special Message from NSPE's New President

ROBERT J. RHINEHART, P. E.





President Robert J. Rhinehart, P. E. Cites NSPE Gains and Objectives

and Don't Miss This One!

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PROFESSIONAL STATUS OF THE ENGINEER IN GOVERNMENT

featuring

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—Begins on Page 18—

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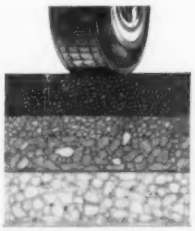
To highway engineers the New Jersey Turnpike's record of tremendous traffic and outstanding safety is a remarkable demonstration of the dependability of modern asphalt pavements for rugged, heavy-duty service.

Modern asphalt pavement saved $50,000 a mile on the New Jersey Turnpike. For one thing, material costs were less because, as is usually the case with asphalt construction, economical use was made of local soils and aggregates. This is one of the many benefits of asphalt's versatility. Also, asphalt construction is faster. Thus the road begins to earn revenue sooner.

Modern, heavy-duty asphalt construction is demonstrating that it offers economy, durability and ease and speed of construction. That's why more engineers are recommending asphalt pavements—engineered for smooth, rugged service.

Engineered for rugged wear

TYPICAL SECTION showing modern 4½" asphaltic concrete pavement on New Jersey Turnpike. Pavement structure designed from the ground up for axle loads of 36,000 lbs. Bids on asphalt design were $5,000,000 less than bids for 10" rigid pavement to carry the same loading.



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Letters to the Editor

Morton Article . . .

Dear Editor:

I was interested in the article by Mr. Morton ("The Time for Unity is Now," April, 1956), since it represents a line of thinking being promoted within the American Institute of Electrical Engineers of which I note Mr. Morton to be a member. I am glad that this discussion has been presented in the pages of the AMERICAN ENGINEER so that I may take issue with Mr. Morton. . . .

No organization other than NSPE will ever have proper recognition because of the simple fact that there are definite minimum standards for qualification and they include the ability to pass a State Board Examination.

NSPE has (legal) recognition and its entire organization is based upon a realization of this principle. With (legal) recognition go the uniform standards of individual qualification. . . .

Members of NSPE who have the necessary standards for state recognition would be foolish indeed to compromise.

Following the EJC line of reasoning, the American Medical Association or the various State Bar Associations should open their membership to those who are not (legally) qualified for their professions. . . .

RALPH P. ANDERSON, P.E.,
Willoughby, Ohio

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P.E.'s in Government . . .

Dear Editor:

Please send me page 17 of the April, '56 issue AMERICAN ENGINEER, ("From Washington"), in triplicate as I wish to send them to my senator and to the Civil Service Commission with letters.

We engineers don't like being "*GS*" something or other. We want "P" (classification) or "Professional Trades."

KENNETH M. ADELSTEIN, P.E.,
Yorktown, Va.

Kudos . . .

Dear Editor:

I just finished reading my first copy of the AMERICAN ENGINEER and I would like to compliment you on the magazine as I feel it is much better than the average magazine of this type. . . .

JERRY LINDSAY, P.E.,
Detroit, Mich.

Education in the USSR . . .

Dear Editor:

The article on page 25 of the June issue of the AMERICAN ENGINEER concerning the Russian engineering program was extremely interesting.

However, most of the publicity concerning the Russian engineering program which has been published in this country fails to mention two important facts:

1. The university program for training engineers in Russia is either a 5 or 5½ year program instead of the usual 4 year program offered in this country.
2. A considerable percentage of the engineers being trained in Russia are women. This has been estimated to be about 30 per cent.

It would seem to me that the AMERICAN ENGINEER could be of great value in *publicizing* the actual curricula now being offered for engineers in Russia. I would assume that the five major categories of engineering would be of most interest. . . .

HUBER O. CROFT, P.E.,
Dean, College of Engineering,
University of Missouri,
Columbia, Mo.

Unprofessional Ads? . . .

Dear Editor:

Not very long ago the editors of *Civil Engineering* magazine were taken to task by an ASCE member for accepting advertising matter seeking engineering employees wherein the applicants are required to state their salary requirements in addition to a resume of their qualifications for the position. This practice is denounced as unprofessional as it reduces down to competitive bidding between the applicants in which, other things being equal, the low bidder gets the job.

It was indeed surprising to find within the pages of the June, 1956 AMERICAN ENGINEER, a magazine dedicated to the advancement of professionalism in engineering, just such an advertisement. Here the applicant is required to commit himself prematurely, for a job in some remote location, at a time when he knows almost nothing about the job, to a prospective employer he does not yet know by name. Is this professionalism?

GORDON H. JAEHNIG, P.E.,
Hampton, Va.

American Engineer

JULY
1956

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President, National Society of Professional Engineers

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PROFESSIONAL NEWS IN CAPSULE FORM

A Roundup of Late Events for Professional Engineers

L. L. Dresser Honored By Oklahoma College

L. L. Dresser, a past president of NSPE, has been voted an honorary associate member of the Alumni Association of Oklahoma A&M College, the board of directors of the college has announced.

Mr. Dresser is president of the Dresser Engineering Company of Tulsa, and in 1954 became the first man to be selected for A&M's engineering hall of fame. His latest honor is in appreciation for his continuing support of college activities, officials of the Alumni Association said.

Women Engineers Hold Convention In Detroit

"Transportation—Motor Cars" was the theme of the 1956 convention of the Society of Women Engineers held in Detroit, Michigan, recently.

At the annual banquet, Miss E'Lise Harmon, chemist and physicist for the Aerovox Corporation, received the 1956 SWE Award for significant contributions to engineering. Following the presentation, Harvey Wagner, P.E., spoke on "Atomic Energy in Industry."

New Jersey Engineers To Lead 30 Explorers On Western Expedition

Two veteran scouters—Andre Vanderzanden and Frederick Stahl, both of New Jersey—will lead an expedition of thirty young explorers to the Philmont Scout March, located in Cimarron, New Mexico, this summer. Both men are engineers, and Mr. Vanderzanden is a member of NSPE.

Philmont, the national camping area for Explorer members of the Boy Scouts of America, is comprised of 127,000 acres of rugged Western country on the eastern slope of the Rocky Mountains in New Mexico.

Mr. Vanderzanden and Mr. Stahl, both with extensive scouting backgrounds, expect to leave with the group on July 17 and return August 3. The three week trip will include a twelve-day stay at the Philmont Scout Ranch plus sightseeing tours in both New Mexico and Colorado.

Survey Shows U-Maine Grads Would Return

A questionnaire sent to 2,000 recent engineering graduates of the University of Maine who have left the State by the Maine Department of Development of Industry and Commerce has revealed that a large majority would return to Maine if comparable employment were available now or in the near future.

Early returns—from the first 600 answering the questionnaire—showed that approximately seventy-five per cent would definitely return to the Pine Tree State if there were suitable jobs. Results of the survey, far from complete, will be coded to provide a potential pool of professional skills to offer to modern industry prospects.

Eastman Kodak Company Awards 34 Fellowships

Thirty-four fellowships for the academic year 1956-57 have been awarded by the Eastman Kodak Company for advanced study in physics, chemistry and chemical engineering, it has been announced.

The fellowships will go to thirty-four colleges and universities in the United States and Canada. The educational institution will select the fellowship recipient. Value of the Kodak fellowship program for the coming academic year is more than $100,000. Purpose of the program—begun by Kodak in 1939—is to encourage research training of promising young scientists and engineers studying for the Ph.D. degree.

John W. Graham Named Cooper Union V-Pres.

John W. Graham, Jr., a member of NSPE and dean of students at Carnegie Institute of Technology, has been named vice president of Cooper Union.

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"Yes sir, there's a good breeze blowing if you say so, sir."

The vice presidency is a new position at Cooper Union designed to handle their broadening development program. Dr. Graham, who assumes his office July 1, has been on the Carnegie faculty since 1946.

❁

Engineering Research Medal Is Established

College and university research leaders in engineering will in the future receive recognition for outstanding original and administrative contributions in their fields.

The Engineering College Research Council of the American Society for Engineering Education, with the aid of the Bendix Aviation Corporation of Detroit, has established a gold medal and citation for distinguished service to research.

The Bendix award—to be given annually—was presented for the first time to an engineering college staff member on June 25 during the annual meeting of the ASEE at Ames, Iowa.

❁

Dr. McBurney Retires From Bur. of Standards

Dr. John McBurney, a nationally known authority in the field of building technology, has retired from the staff of the National Bureau of Standards after thirty years of service.

Dr. McBurney has been a leading figure in the preparation of specifications and standards for masonry, mortar, brick and asphalt tile. In addition to holding several patents for testing instruments and methods, Dr. McBurney has published many papers in his field. What is known in Europe as the Hirschwald-McBurney Coefficient is widely used for predicting weather durability of heavy clay products and his "McBurney Indentation Test" for asphalt tile is in international use.

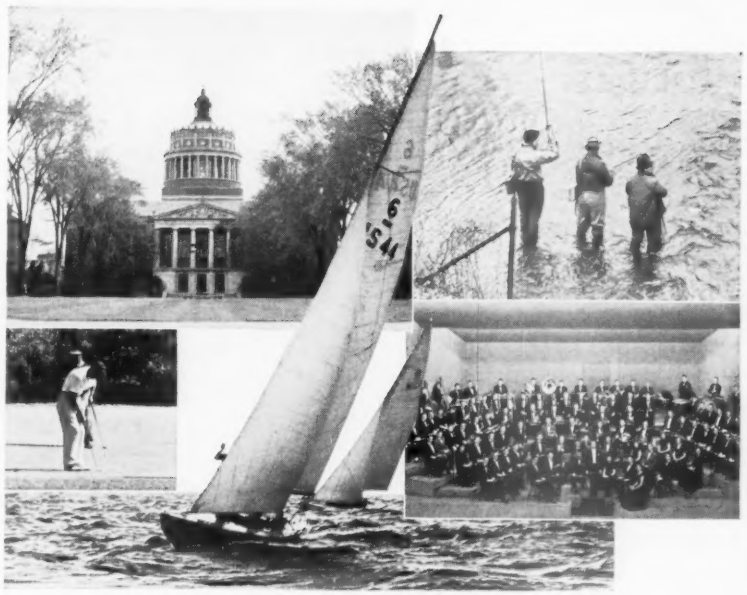
❁

New Engineering School Planned at Princeton

The erection of a five-unit quadrangle for the school of engineering has been announced by Princeton University as the first part of a master plan for future physical development.

With significant research supported by the Government, industry and foundations amounting to more than $1,000,000 a year being carried on by the engineering school, enlarged and modern facilities are greatly in need. It was also noted that the enrollment has increased from 180 students to 560 in the past twenty-five years.

Architects have plans for the pro-



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The list below shows where there's room for you and your ideas to grow. Dig in now—with a detailed letter to Mr. Arthur N. Paul at the address below. We think you'll like what he has to say to you.

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posed school of engineering on their drafting boards, but construction will now get under way for several months.

❁

Engineering Examiners To Meet August 23-25

The thirty-fifth annual meeting of the National Council of State Boards of Engineering Examiners will be held at Los Angeles, California, August 23-25. One of the highlights on the full agenda will be the presentation of the Distinguished Service Certificate to a number of men who have rendered outstanding service to the National Council.

❁

Illinois Tech Breaks Ground For Building

Illinois Institute of Technology broke ground in June for a classroom and laboratory building that will become the home of its departments of electrical engineering and physics.

It will be the twenty-first new building at the 110-acre Technology Center on Chicago's near south side that Illinois Tech has been developing during the last ten years. The new structure, costing approximately $1 million, is expected to be ready for use during the summer of 1957, according to President John T. Rettaliata.

❁

Dean D. B. Jett Leaves College Faculty July 4 After Lengthy Career

Dean Daniel B. Jett retires from the New Mexico A&M College faculty this summer after training engineers for thirty years. He will reach the compulsory 70-year-old retirement age on July 4.

Dean Jett began his teaching career at A&M in 1926—the same year he finally received his degree as a civil engineer from the Missouri School of Mines. A series of obstacles, financial and otherwise, had prevented his graduation until that date.

He started as an instructor and in seven years was a full professor and head of the civil engineering department. From 1938 to 1947, he was dean of engineering. As Dean Emeritus he remained as department head until 1950. During the past six years he has retained the title of professor of civil engineering and carried a full teaching load.

❁

NSPE Director Kennedy Talks at Virginia Meet

Harry G. Kennedy, a national director of NSPE from West Virginia and an incoming vice president of NSPE, spoke on "Our Natural Resources" at the thirty-second joint meeting in May of the Virginia engineering and technical societies.

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Mississippi Society of Professional Engineers — Summer Meeting, July 13-14, 1956, Beuna Vista Hotel, Biloxi, Mississippi.

Wisconsin Summer Workshop — September 15-17, 1956, Nippersink Manor, Genoa City, Wisconsin.

NSPE Fall Meeting — October 25-26, 1956, The Greenbrier, White Sulphur Springs, W. Va.

West Virginia Society of Professional Engineers—Annual Meeting, October 25-26, 1956, The Greenbrier, White Sulphur Springs, W. Va.

North Dakota Society of Professional Engineers—Annual Meeting, November 2-3, 1956, Grand Forks, N. D.

Puerto Rico Society of Professional Engineers—Annual Meeting, November 24, 1956, Puerto Rico Institute of Engineers Building, San Juan, Puerto Rico.

NSPE Protests Bidding for Services By S.C. Highway Dept.

Letters of protest regarding the soliciting of bids for engineering services by the South Carolina State Highway Department have been mailed to consulting engineers in the Southeast by the NSPE.

The letters, signed by Warner Howe, NSPE vice president for the Southeastern Area, call attention to a newspaper advertisement published in a recent issue of the *Greenville News* soliciting bids for engineering services in connection with the construction of a number of bridges, retaining walls, and stairways.

The letter points out that NSPE, and other engineering societies, "consider competitive bidding for professional engineering services unethical and unprofessional."

Mr. Howe's letter suggests that since many of the best qualified engineers will not participate in competitive bidding, the long-run results may be "less adequate engineering design and more expensive construction costs."

A similar letter of protest was also sent to the Governor of South Carolina, with copies to the Attorney General and Commissioner of Highways for the state.

Enclosed with the letters were copies of an NSPE policy statement with regard to competitive bidding for engineering services. The statement reads in part that ". . . the securing of competitive bids for professional engineering services is not in the best public interest and such procedure frequently results in the awarding of the work to other than the best qualified engineers."

The NSPE policy statement emphasizes that since the practice of engineering is a learned profession, requiring of its members sound training, broad experience, personal ability, honesty and integrity, the selection of engineering services by an evaluation of these qualities should be the basis of comparison rather than competitive bids.

The policy statement recommends that engineering contracts be negotiated, with interviews being conducted for the purpose of selection on the basis of the firm's qualification for the work to be performed.

In his letter to Governor Timmerman of South Carolina, Mr. Howe points out that "the procurement of professional engineering services for public work through negotiation, rather than by attempting competitive bidding procedures, has been endorsed by the several engineering societies of this country, and has been accepted by legislative bodies, administrative agencies and the judiciary as being in the public interest."

The letter added that "the adherence to the principle of obtaining professional services on a basis of negotiation rather than competitive bidding has been noted in almost every state in which this question has arisen."

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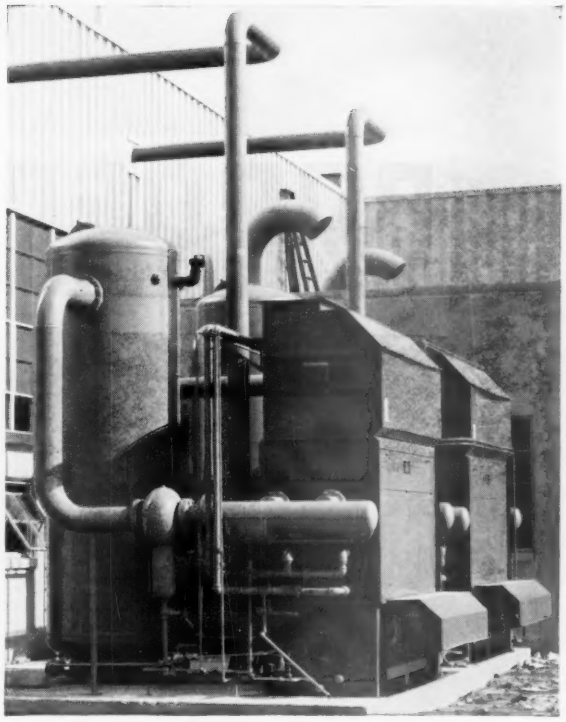

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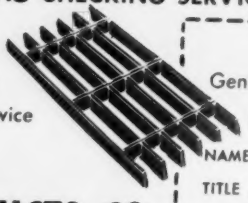

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VOLUME TWENTY-SIX NUMBER SEVEN

NSPE Growth = NSPE Progress

By Robert J. Rhinehart, P.E.

President, National Society of Professional Engineers

THE opportunity to serve as president of a major professional organization is surely one which calls for expressions of the deepest appreciation to all those individuals who made such an opportunity possible. Along with the honor associated with that position is the feeling of responsibility involved, and the desire to make every day count in contributing to a larger and stronger profession. In assuming the presidency of NSPE, I realize only too well the work and responsibility connected with that office. But I also am very much aware of the fact that my predecessors have set high standards in public service and professional society accomplishments.

In looking back over the past few years of NSPE growth and development, I am conscious of the fact that a good number of large and important strides have been taken. Our beautiful new headquarters building in Washington, D. C., is one of the most obvious of these strides in the direction of professional progress. In the areas of membership, public relations, registration, government liaison, and many other such things, we have likewise made considerable progress.

But while progress has and is being made, there are no lack of problems confronting our National Society. One of the most fundamental of these problems is that of membership increase. Engineering itself is in a great state of expansion in these years. Our membership gains must reflect this expansion. They must also reflect the great increase in the number of registered engineers in recent years. We cannot afford to merely record a steady membership increase. Rather, we must strive for a numerical growth which indicates that our organization is truly representative of the great profession which we serve.

I believe that all possible effort should be concentrated on increasing our NSPE membership. This should be our biggest internal objective. The responsibility for this effort must be felt at the local, state and national levels. It is something that demands the full cooperation of individual members as well as that of Society officers. The nature of our membership problem is seen in the disparity of state society membership figures. Some state societies boast of a membership of more than 70 per cent of the states' registered engineers, while other states have much less. The same disparity exists between many local chapters.

Increased membership will provide the income which is needed to carry on our activities, many of which cannot be pursued for want of sufficient funds. Increased membership will aid materially in our public relations program. Increased membership will result in larger chapters, more chapters, better and more interesting chapter and state meetings, and an enlarged annual meeting at the national level. Increased membership will increase our

Society officers for the 1956-57 administrative year. Seated, from l. to r.: Vice Pres. Allan H. Kidder, Northeastern Region; Immediate Past President Allison C. Neff; President Robert J. Rhinehart; and Treasurer Russell B. Allen. Standing, from l. to r.: Vice Pres. Harry G. Kennedy, Central Region; Executive Director Paul H. Robbins; Vice Pres. Warner Howe, Southeastern Region; Vice Pres. Lindley R. Durkee, Western Region; and Vice Pres. Clark A. Dunn, Southwestern Region.

Above is shown the NSPE's Board of Directors as pictured at the recent Annual Meeting at Atlantic City.

influence with legislative bodies at both the state and national levels.

NSPE is built on strong democratic principles. The individual registered engineer members are the backbone of the Society. These members meet together in their local chapters to discuss their common problems. Then we have the chapters represented in the state societies. Next in the organizational structure is the National Society, governed by directors from the state societies. Hence we have a three level organization dedicated to the professional aspects of engineering.

The possibilities of the National Society are practically unlimited. They all depend, however, on the responsibilities recognized by the individual registered professional engineer in belonging to his professional society, and in the giving of his time and energies at the chapter, state, and national levels toward the establishing of policies and activities, as well as implementing those which have already been formulated.

Perhaps the most important activity any professional society can have is that of public relations. Ours is a profession which has achieved legal recognition through the state registration laws. It is deeply concerned with the protection of the health, safety and well-being of the public. There is, therefore, a distinct responsibility for us to establish sound public relations in each community. This responsibility is not confined to the public relations committee chairman in each NSPE affiliate. It extends to every professional engineer. The public relations program of the National Society is designed to stimulate public awareness of the engineer as a professional man, and one who is guided by the highest ethical standards.

The promotional activities involved in our annual National Engineers' Week are illustrative of the type of thing which our National Society is doing to bring to the general public an increased awareness of the engineer as a member of a learned profession. Each year the Week is more widely observed because more engineers are becoming interested in that activity. It is clear that many values to the profession have been realized by this annual observance. However, we should not regard this event as our only venture in public relations. A continuous public relations program surmounting any present activity is needed. We must keep ourselves, our accomplishments, and our objectives continually before the public if we are to achieve the fullest recognition for our profession.

DURING the past year the Registration Committee has been analyzing the requirements of the present state registration laws as well as the policies and procedures of state registration boards. It was found that these differ so greatly in their requirements that there are bound to be difficulties experienced when an engineer wishes to obtain registration by endorsement in another state. In order to have a new guide to use in amending old laws or obtaining new laws, this Committee has developed and written an Ideal Engineering Registration Law proposing requirements for the future. The Ideal Law will be submitted to all interested societies, for their comments. After all questionable points are resolved, it will be submitted in its final form for use and reference.

It is significant that NSPE has taken the lead in attacking this problem of conflicting registration laws. It will be remembered that NSPE has a lengthy record of pioneering in the field of engineer registration. The membership can take no little pride in the fact that our Society has played a key role in the stimulation of interest in the whole subject of registration. The newly proposed Ideal Law is a direct result of the type of professional leadership which NSPE is giving to engineering today. I am sure that the present national officers and Board of Directors are determined to work for the continuation of this leadership.

Since most engineers are employed by others, the National Society has long been interested in promoting proper employer-employee relations. The sponsorship of the Engineer-in-Industry Conference last year in Philadelphia is an example of NSPE leadership in the field. The wide circulation given to *A Professional Look at the Engineer in Industry* is another example of NSPE leadership in action. Currently, the National Society's efforts in this field are seen in the Board of Directors' adoption of the criteria of employment practices for the guidance of professional engineers and their employers. These criteria were developed as a result of long study on the part of the Engineer-in-Industry Subcommittee of the Employment Practices Committee. In looking over this checklist of suggested responsibilities for both engineers and their employers one is struck by the fact that the criteria read like an outline of the whole basic philosophy of professionalism upon which NSPE has been constructed. The criteria show why registered engineering employees are professional men. They show the extent of respon-

(*Continued on page 49*)

Engineering Employment Practices

Digest

A short digest of a monthly bulletin published by the National Society of Professional Engineers in the interest of advancing cooperative relations between professional engineers and their employers. To regularly receive the complete publication which is distributed widely to industrial, commercial and educational organizations, write the NSPE, 2029 K St., N.W., Washington 6, D. C.

✓ **"Criteria for Professional Employment of Engineers" has been approved by the NSPE Board and is now being published for wide distribution to engineers, industry and others. The criteria, prepared by the NSPE Engineer-in-Industry Subcommittee, covers specific categories of engineering career development for both management and individual engineers. Topics included are recruitment; indoctrination; technical, administrative, personality and professional development of the individual; salaries; engineering titles; personnel practices; and termination.** **(See page 29 for additional details)**

* * * * *

✓ The editors of the weekly *Industrial Relations News* featured a two-page editorial in a recent issue on "The Engineer Merry-Go-Round Adds To Shortage Headaches." The major theme is that while higher salary offers are a factor in the high engineering quit rate, the major reason is dissatisfaction with other company policies and practices. The complete editorial is being sent to industrial management and copies are available to NSPE members upon request. The editorial refers to the NSPE publication, *A Professional Look at the Engineer in Industry*, and says management should give serious consideration to the NSPE study findings and recommendations.

* * * * *

✓ *A court test of the NLRB's interpretation of the professional provisions of the Taft-Hartley Act in representation proceedings is in the offing. The case which brings the issue to a head involves a Board decision placing nine nonprofessionals in a voting unit with 233 engineering employees who meet the professional definition of the law. For several years the NLRB has ruled that it can place some nonprofessionals in a professional unit for voting purposes so long as the professionals "dominate" the unit. The instant case involves the Buffalo Section, Westinghouse Engineers Association (ESA) which won the election but has declined the representation because the nonprofessionals are included. The union says it intends to ask the court to set aside the Board decision.*

* * * * *

✓ **A majority of the members of the Minneapolis-Honeywell Federation of Engineers (ESA) voted recently to disaffiliate from the federation of engineering unions, but failed to muster the two-thirds vote necessary. The vote was 297 for disaffiliation from ESA and 213 against. The main reason for the attempt to break away from the union federation was the ESA convention's defeat of an MHFE resolution to consider affiliation with the AFL-CIO. Other reasons cited by the union leaders were: slow growth of ESA in recent years, lack of organizing policy and drive, high fixed overhead relative to total income, and failure to maintain a current regular newspaper of ESA affairs. According to the MHFE vice president, ESA has approximately 17,000 members in all of the affiliated units.**

* * * * *

✓ Other engineering union developments—an NLRB regional director has dismissed charges of the Council of Western Electric Technical Employees—National (ESA) that the company engaged in unfair labor practices because it allegedly placed nonprofessionals in the bargaining group . . . the NLRB General Counsel has thrown out charges of MHFE that the company engaged in illegal activities for disciplining union members who took part in an informal union meeting on company property during their lunch hour.

* * * * *

✓ *The National Industrial Conference Board has published a 39-page report, "Employment of the College Graduate," which covers a survey of 240 companies on recruitment, selection and training of college graduates. About half the demand in company quotas is for engineers. For information about how to obtain a copy of the full report write the NICB at 460 Park Ave., New York 22.*

* * * * *

✓ **The Civil Service Commission is expected to announce soon pay boosts for engineers in grades 9 and 11. The new rates are to be $6115 for grade 9 and $7035 for grade 11, compared to $5440 and $6390, respectively. Congress has been asked by the CSC to authorize payment of travel and moving expenses of new engineer-scientist employees from their home to their first duty station, and for travel of prospects for interviews.**

• *An American Engineer Photo Story* •

THE 'CROSSROADS *of* PROFESSIONALISM'

JUST ten years ago a tiny office in the National Press Building in Washington, D. C., was the headquarters of the National Society of Professional Engineers. The decade between that small beginning and the dedication of the Society's new headquarters building last February was one of continuous expansion in over-all NSPE activity. The construction of a National Society headquarters building got an official green light at the Daytona Beach meeting of the Board of Directors in 1953. At that time a Committee of Advisors on Headquarters Housing was organized to study the problem. After an examination of a large number of building sites in Washington, it was decided to purchase the property at 2029 K Street, Northwest, for $56,757. The Committee then studied a variety of plans for financing the building. It was finally decided that a program financed by the issuance of building certificates to the membership would generate a definite feeling of participation on the part of the entire Society. The entire certificate authorization of $400,000 has been underwritten. A breakdown of costs shows the following: land, $56,757; building and elevator, $322,952.61; architects, $25,000 (estimate); promotion, administration, and miscellaneous, $13,465.50; legal costs, $8,520.41; furnishings and equipment, $2,308.48; partitions, $10,997. The Board of Directors has authorized an additional $25,000 for equipment and furnishings. The Society is currently occupying the basement, first and second floors of the building. Long-term leases for the third and fourth floors have been negotiated. A successfully functioning national society is a product of many factors. At the new NSPE headquarters building three of these factors—housing, operating facilities, and skilled personnel—are most evident. The photographs on these pages are presented in the AMERICAN ENGINEER this month to show how the Washington staff carries out the day-to-day business entailed in the policy decisions of NSPE as expressed through the president and Board of Directors. The many members who cannot visit the new NSPE building are invited to come along on this "photo tour" of what has been called one of the most striking and attractive national society headquarters in Washington. The building itself is a measure of the progress that NSPE has made. In his dedicatory remarks, Allison C. Neff expressed the hope that the NSPE building would become a "crossroads of professionalism." This hope is already becoming realized as professional engineers from all over the country stop by for a visit when in Washington.

◄ **The Professional Engineers Building—NSPE headquarters and a crossroads of professionalism for engineers throughout the country.**

▼ **First stop for visitors in the Professional Engineers Building is the receptionist's desk just inside the glass doors.**

The list of tenants is an ever growing one.

Bookkeeping, clerical, and filing activities are important in an organization of 38,000 members. These departments occupy the front section of the first floor.

Editorial and advertising direction for the AMERICAN ENGINEER are given from the magazine's offices located in the rear section of the first floor. ►

▼ Writing, layout, and public relations projects are handled in the first floor offices of the AMERICAN ENGINEER.

Keeping track of the names and addresses of NSPE members throughout the country is an operation that requires an extensive filing system. The membership department occupies a glass-enclosed area on the lower level of the building.

Above: Addressograph plates for mailing lists are kept on members, NSPE affiliates, newspapers, technical publications, deans of engineering schools, consulting engineers, industrial executives, and many national organizations. This section is in the rear of the lower level.

Above, left: The printed matter prepared and published by NSPE is distributed throughout industry, educational and government circles, and the engineering profession. The offset press shown here is located in the production and mailing department on the lower level.

Left: Legislative analysis and the preparation of testimony on behalf of NSPE before Congressional committees is an important Society function. The offices of the legislative analyst and the assistant to the executive director are in the back section of the second floor.

A walnut table of modern design is the center piece in the oak paneled Conference Room on the second floor. Diffuse lighting for the Room is provided by fluorescent lamps above a translucent plastic ceiling.

The NSPE library, located on the second floor, is becoming a repository for government, industrial, educational, and other studies of problems and conditions relevant to all phases of professional engineering.

Executive Director Paul H. Robbins has his office in the front section of the second floor. The windows overlook K Street in the Northwest section of the capital.

The Engineer-in-Government panel discussion in session at Atlantic City. From l. to r.: Charles D. Curran; George De-Ment, Commissioner of Public Works, City of Chicago, moderator; Frank G. Manning; and Arthur L. Wiesenberger.

A Symposium . . .

Professional Status of the Engineer Employed in Government

Presenting . . .

FEDERAL

Charles D. Curran, P.E.
Former Executive Director,
Hoover Commission Task Force,
Washington, D. C.

STATE

Arthur L. Wiesenberger, P.E.
Deputy Secretary & Chief Engineer,
Pennsylvania Department of Highways,
Harrisburg, Pa.

MUNICIPAL AND COUNTY

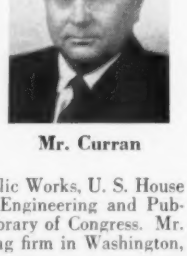
Frank G. Manning, P.E.
Chief Engineer, Department of Public Works,
Jersey City, New Jersey

THE three extracted papers presented here were given at a conference May 25 in Atlantic City in conjunction with the annual meeting of the National Society of Professional Engineers. The conference on government was held simultaneously with conferences devoted to problems of professional engineers in industry, education, and private practice. Each session featured leading figures from the engineering field involved.

The papers from the conference on government will be the first in a series to be presented by the AMERICAN ENGINEER. Future issues will carry extracts from papers presented at the conferences on industry and education. There will be four papers from the industry conference, and three from the one on education.

The Federal Government
By Charles D. Curran, P.E.

The Author . . .



Mr. Curran

Charles D. Curran, P.E., is a former Executive Director of the Hoover Commission Task Force, Washington, D. C., and a graduate of U. S. Military Academy. He received his B.S., C.E., and M.C.E., from Cornell. He served with the U. S. Army, Corps of Engineers in various stations until retirement in 1935. He has held positions in the Federal Government with the Bureau of Budget, Executive Office of the President; International Boundary and Water Commission; Staff Director, Select Subcommittee to Study Civil Works, Committee on Public Works, U. S. House of Representatives; and Senior Specialist, Engineering and Public Works, Legislative Reference Service, Library of Congress. Mr. Curran now operates a consulting engineering firm in Washington, D. C.

THE Federal Government is the largest employer in the United States. Out of some 2.3 million civilian employees, two million are under civil service, and over 1.3 million are white-collar employees. Within this latter number there were, at the last detailed report, 60,510 in what the Civil Service Commission classifies as the engineering group. Approximately 43,000 of these were engineers: roughly 8.5 per cent of the estimated 500,000 in the country.

The engineering group employees are largely concentrated in the Defense Department. Over two-thirds of the total are employed by the Army, the Navy, and the Air Force. The Interior Department comes next with about 7,000, followed by Agriculture and Commerce with 3,000 each, and Tennessee Valley Authority with 2,000. The remaining 4,000 are scattered among the other agencies of Government.

The average salary of those classified by the Civil Service Commission as professional engineers was, at a recent survey, about $6,400, and of the sub-professionals $3,900. With over two-thirds of them in the Defense Department, we would find that persons in supervisory positions are largely commissioned personnel of one of the uniformed services who are excluded from the count but whose total compensation, if included in the averages, would tend to raise the figures. While the Civil Service census was made before the last increase in salary became effective, it can still serve as a measure of the general level of opportunity within the Federal establishment. Currently, the starting salary for engineers with a bachelor's degree is $4,480 and for those with a master's degree $5,355, while the maximum salary of a career engineer is $14,800. I am advised that there is only one in this top level at present.

Out of about 1,000 Federal employees in the top three so-called "super" grades which pay between $12,900 and $14,800, currently seventy-four are "engineers." It may be that there are other engineers in the group classified as administrators but there are only seventy-four classified as engineers.

This, in brief, is a statistical picture of the engineer in Federal Government.

I mentioned that the average salary of the professional engineers in the Federal Government at the time of the latest comprehensive study was approximately $6,400. Another study made about the same time shows that the median salary of Federal engineers was about $7,500. Only two groups of engineers had lower median rates—those in state government and those in county and municipal government. Over fifty per cent of the engineers surveyed in an NSPE study earned $8,460. These figures indicate broadly either that the Federal Government does not use top-flight engineers or that those in Federal service are attracted there by something other than salary.

One of the most important considerations in the endeavors any one of us undertake is the need for realization that they, either directly or indirectly, contribute to the enhancement of human values. Without this, no effort is worthwhile. Many individuals sincerely believe that there is a greater likelihood of this realization when their efforts are directed to some level of public service rather than into trade or commerce. There is also the belief that the contribution to enhancement of human values will be more direct when one is in Government service than it can possibly be when one's efforts are aimed to the success of some corporation as the immediate and direct beneficiary. Thus, when an individual is so impelled, he will be inclined, provided that compensation is not clearly inadequate, to favor some level of public service.

A second reason to attract an individual to Government service is the particular kind of experience he can expect to receive. The most populous branches of engineering in the Federal service are electronics and aeronautical, out of some forty-one different categories listed. An engineer interested primarily in research and development in guided missiles, ballistics, or similar fields, might be expected to seek a position in the Defense Department. One interested in engineering uses of nuclear energy might be expected to seek employment with the Atomic Energy Commission. The engineer interested in river regulation and development or the construction of high dams might find one of the Federal agencies a good place to start.

Despite these reasons for attracting an individual to Government, there are many disadvantages in Federal service. One of the major obstacles is the drag of the red-tape of administration. Our Government is intended to be one of laws, not men. It is a system of checks and balances intended to prevent the assumption by any individual of too much power. There is a certain absence of both authority and responsibility within a bureau. All this

Engineers at work for the U. S. Bureau of Reclamation.

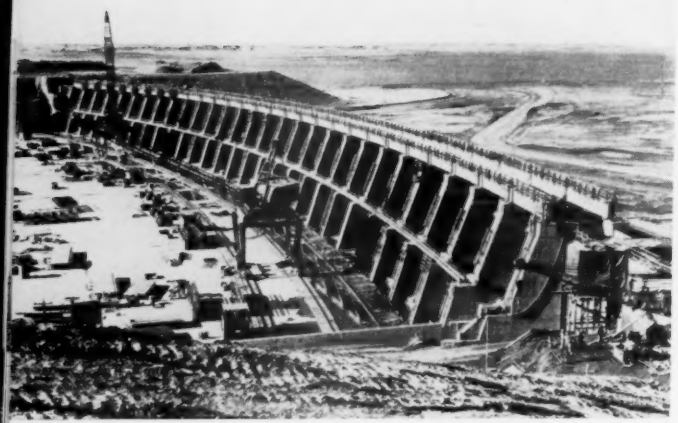
tends to make Government inanimate and inefficient. It all harasses the professional worker. Time is wasted on essentially meaningless efficiency ratings, it is taken up in working with a job classifier, and in writing position descriptions. There are cumbersome restrictions on travel. A man may be considered competent to approve or disapprove a multi-million dollar project but when it comes to his own travel authorization and travel account, he is viewed with deep suspicion and is frequently harassed by petty legalistic obstacles. While the leave system is relatively generous, in total, his use of leave may be arbitrarily restricted by administrative order. He has nothing comparable to the pass of the armed forces to permit absence to take care of personal business without charge against his annual vacation. Many complain of lack of privacy both in space and in the handling of materials and papers. Too frequently those charged with administrative responsibility, perhaps finding time heavy on their hands, undertake surveys of the files and records of engineering and scientific personnel with a view to telling these personnel what may be retained and what must be discarded.

Finally, an element that tends to discourage their seeking or, once in, remaining in, Federal service are the ir-

responsible and slanderous attacks so frequently leveled at Federal employees. Demagogues are not the only ones who, in their recognition of the wastefulness in Government, mistakenly charge that all Federal employees are wasteful and incompetent.

What can be done to improve Government employment for the engineer? How can the job be made more attractive? How can the Government be helped to obtain and retain the engineers it needs?

Some improvement can be made by removing the many minor irritations I have mentioned. Improved privacy; eliminate red-tape, by which I mean nonessential administrative clutter and paper work. Improved pay status is important. However, just raising the salary of those in the service will not necessarily be adequate. Even though leaders in public affairs such as Herbert Hoover and Clarence Randall, among many others, have taken occasion to commend the Federal worker, there is too much of the happy pastime across the country of general disparagement. We



Federal engineers at work: the Garrison Dam in North Dakota.

can never attract people to any kind of a job if we are going to insist that by taking that job they are *prima facie*, second rate. This does not mean, of course, that we should not recognize the need of eliminating deadwood from the professional ranks of Federal service. People are pretty much the same the country over and any organization is bound to recruit its share of incompetents and ineffectives. Civil service protection against political vindictiveness and the spoils system must not be distorted to retain and promote those who do not contribute adequately to job accomplishment.

The engineer in Government, I believe, is involved in three problems. First, there is the whole Federal personnel problem. Second, there is the problem of short supply. Finally, there is a problem of professional standing.

As to the over-all problem, the Hoover Commission, that reported to Congress last summer, found that about 500,000 persons a year leave the Federal Civil Service. This turnover, in excess of twenty-five per cent, the Commission said, would bankrupt any private enterprise twice a year. Second, the Commission found that the method of the promotion and pay fails to produce and hold the type of top skill and talent needed in any great organization. Finally, it found that there were not enough policy-making positions subject to Presidential appointment. It also recommended that salaries in the top level be increased. The Commission found that salaries and fringe benefits in our top civil service are below those in the top military service and are far below those in private enterprise.

While all of this has a relationship to the engineer in the Federal Government and while some engineers would be expected to gravitate to policy and administrative positions, I am inclined to believe that the professional engineer problem falls in a special category.

With the current shortage of engineers and scientists, as with any item in short supply in a profit and loss free-enterprise system, the dollar value of the scarce commodity rises. This raises a particularly knotty question for the Federal Civil Service under the current classification law. In accordance with requirements of law, the Civil Service Commission classifies jobs throughout the Federal service. The classification then determines the salary rating of the job. Jobs of equal difficulty and equal importance are supposed to rate equal pay. The third step is to find an individual to fill a job. The salary rate goes to the job, not to the qualification of the individual. The Civil Service Commission has some slight latitude in setting entrance salaries since the legal pay rate for any one job classification level varies between fixed limits.

In an attempt to bring in 3,700 engineers and scientists by April 1, 1957, the Commission has authorized a starting salary of $4,480 for those with a baccalaureate degree and of $5,335 for those with a master's degree. This means that the maximum legal salary rate will be paid for jobs at starting level. In theory, at least, the individuals entering on these positions will not be eligible to any salary increase while they hold these jobs. Since the pay goes with the job and not with the individual, it will be necessary for the individuals to advance to higher level jobs.

If the Civil Service Commission were to up-grade jobs to be held by engineers, that is, say that a job is more difficult and involves more responsibility just because it is to be filled by an engineer than a similar job elsewhere in the classified service, it will tend to undermine its whole classified service. Phony job sheets would not be something new. Many of us with extensive experience in the Federal service have seen job descriptions, for example, for administrative assistants, that were used merely as a device to increase the salary of a good secretary. Unfortunately, this procedure is not only dishonest but it frequently has deceived the incumbent into believing she was competent in administrative fields while, as a matter of fact, her qualifications were strictly those of a secretary. But in a time of acute shortage of secretaries and stenographers, she warranted a salary beyond that which the classification system provided for a secretary.

For starting engineers, the Civil Service Commission has now gone as far as it can under existing law without dissemblance and subterfuge. Probably a lenient approach has been necessary in establishing the job grades for positions in the middle area in order to provide salaries more nearly commensurate with ability under the present market. This is an expedient which, unfortunately, perverts the law. At the upper end of the job scale there are, obviously of necessity, relatively few positions. This means a practical ceiling on salaries that is considerably below the top legal pay and several levels of work responsibility for the same salary.

A passing touch of recognition was accorded the engineering profession in one announcement recently when the holding of a professional engineer license was recognized as evidence adequate to exempt an applicant from written examination. This is small recognition when the same examination exempted college graduates and individuals of over eight years experience from the written portion of the exam.

About 8.5 per cent of the nation's engineers are in the Federal service, and not required to be licensed. They deplore their lack of prestige.

Any attempt to force registration on the 43,000 Federal engineers would serve no useful purpose. It might even develop pressure to lower standards; there certainly would be resistance from many quarters. But there is and must be a difference in status between a licensed professional engineer and one who has not been specifically found qualified under the laws of any state.

I have a few suggestions for the improvement of the professional status of the engineer in the Federal service. First, have established within each agency that employs engineers, specified positions which can be held only by registered professional engineers. A survey should be made of each agency by a group consisting of representatives of the Civil Service Commission, of the agency, and of the National Society of Professional Engineers.

Second, these selected positions would thereafter be filled only by registered professional engineers. Let me mention here that I do not think it would be practicable to insist that each professional engineer position within the Federal service be filled by an incumbent licensed by the specific jurisdiction where the position is located. This could lead to undesirable pressure on the Federal agency by the particular state involved and we could soon develop a situation in which a state might try to insist that only licensees of that state could be employed by the Federal Government within that state. Certainly, this extreme would be improper.

And yet, when a sovereign state has seen fit, in the interest of public safety, to require the examining and licensing of engineers practicing within it and, conforming with some Federal law, has agreed to hold and save the United States free of damages resulting from Federal construction, should it be denied assurance that those responsible for the Federal construction meet the state's own standards for engineers? To be sure, the more the state takes on its own responsibilities and avoids shifting them to the Federal Government in the hope of obtaining a Federal handout, the more control it can exercise over construction within its jurisdiction.

While I do not imply in the slightest that Federal engineers are incompetent, I believe that we registered professional engineers, acting through state societies, have a responsibility in the public interest to foster actively the use of registered professional engineers in responsible charge of engineering work at all levels of government.

Thirdly, I suggest placing the selected positions in a separate schedule or a category exempt from the Classification Act. This would be comparable to the present exemption for physicians in Veterans' Administration, and attorneys in Schedule A. The agency head, with the advice and consent of an agency board of professional engineer examiners, should be permitted to fill these positions from the men available most competent and fit for the assignments. A civil service audit would be desirable to check that there was no drift to a spoils approach.

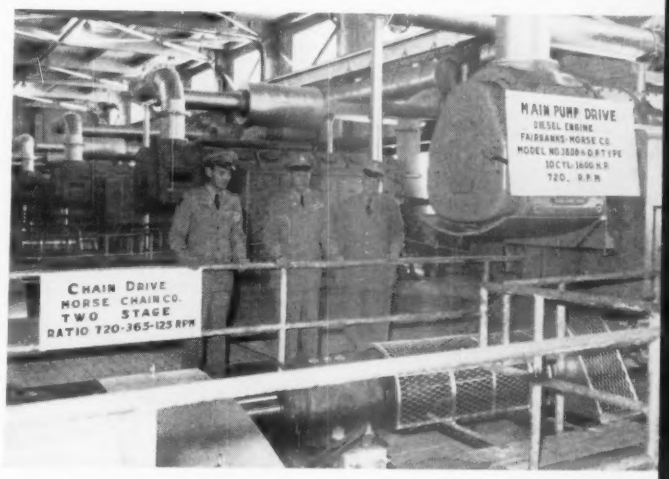
Fourth, salaries for these positions would be established essentially commensurate with comparable non-Federal positions subject, of course, to reasonable limitations in law. I am advised that the Civil Service Commission is currently working on legislation to improve the salary scale for hard-to-fill positions.

Now, the improvement of the status and prestige of the engineer in the Federal Government is not to be accomplished solely by efforts outside the Federal service. It is something to which the Federal engineer himself must contribute. The engineer in public service has a responsibility to his country and to his profession that seems to have been neglected in recent years.

Most of the engineers in the Federal Government are engaged in work of the Defense Department and their endeavors stay well within technical and professional fields.

Unfortunately for the engineer, in many of the other areas of Federal activity, he has become involved in politics. In the past quarter-century, the Federal Government has become deeply involved in the development of water resources. Its activities are spread through many agencies and the overlaps are appalling. For details on the facts, let me refer you to the reports on water resources and power of the Hoover Commission and of its Task Force.

These overlaps have placed many of the Federal agencies in competition with one another for work, for place, for power, for prestige, and for funds. The first canon of the code of ethics of engineers calls for an engineer to act for his clients or for his employers in professional matters only as a faithful agent or trustee. Who are the clients or employers of engineers in the Federal service? And what does it mean to be a faithful agent or trustee?



Maj. Gen. Samuel D. Sturgis, center, Chief of Army Engineers, inspects a Florida flood control project.

I have no knowledge of a single instance in the Federal service where an engineer has attained any personal material advantage through a failure in integrity. But I am aware of instances in which engineering reports to Congress exaggerated expected project benefits. I have heard committees of Congress refer to the testimony on engineering projects as being statements that were less than forthright.

To summarize the problem of the Federal engineer, we must first recognize that the Federal Government is an important employer of engineers. The profession, as a whole, has a large stake in assuring that the engineering work of the Federal Government is performed by qualified professional engineers and that the work of these engineers is adequately recognized and rewarded. Non-Federal professional engineers have considerable responsibility in helping to attain necessary improvements in pay, working conditions, fringe benefits, and prestige for their Federal brethren. And, finally, the individual engineer in the Federal Government has a great responsibility himself in elevating the position he holds to one of highest public esteem.—***End.***

The State Government
By Arthur L. Wiesenberger, P.E.

The Author . . .

Mr. Wiesenberger

Arthur L. Wiesenberger, P.E., is Deputy Secretary and Chief Engineer, Pennsylvania Department of Highways. He was graduated from Cornell, with a B.S. in Civil Engineering. He was appointed District Engineer of the Pennsylvania Department of Highways in 1955. He is a member of, and on leave from, A. L. Wiesenberger Associates, Consulting Engineers, in Allentown and Bethlehem, Pennsylvania. As Deputy Secretary and Chief Engineer, Mr. Wiesenberger is responsible for technical programs, recruitment of technical personnel and initiating in-service training programs.

Highways are a big problem for the state engineer.

I AM highly honored and more than pleased to appear on a program with my distinguished colleagues Mr. Curran and Mr. Manning, for the purpose of discussing the professional status of the "Engineer in Government." It is a subject which I have had occasion to examine with the greatest care, since the year 1956 will in all probability see the emergence from the national legislature of a positive highway program so gigantic in scope as to be the largest ever conceived in the world, as indeed it has to be to catch up and keep pace with our rapidly growing population and vastly expanding economy. It will be a prodigious plan, one which will produce for the first time in our history a properly articulated and integrated system of highways which will solve the problems of speedy, safe, transcontinental travel, inter-city communication, access highways and metropolitan congestion.

Since I am charged with the responsibility of operating one of the largest State Highway Departments in the nation, one which has an aggregate mileage equal to the combined systems of all the six New England states plus New York, New Jersey and Maryland, the problems of maximum utilization of our available engineering manpower and of recruiting new technical talent, will be factors which will loom large in determining the extent and rapidity with which this momentous program will be translated from law to plan to reality. In other words, the "Engineer in State Government" is the keystone in the arch of this bold new concept of our basic means of transportation.

In assessing the ability and readiness of our engineering staff to plan, design and execute so ambitious a program, and in evolving a *modus operandi* which will materially increase our engineering productivity, I have had to scrutinize intensively and evaluate the position and status of the "Engineer in State Government." I have delved deeply into the past and what I have discovered has both thrilled and distressed me.

First, I was astonished to find in my own organization men who had in reality been the true pioneers of highway engineering.

Second, I found very little comprehension on the part of the general public of the complexities and tremendous responsibilities inherent in modern highway engineering.

Third, I was astounded to find very little appreciation on the part of the general public of the invaluable and outstanding contributions these highway engineers have made to the high development of our present economy and to our American way of life.

Fourth, I was amazed to note the inequities between the salaries these engineers received from the state and those paid to engineers in industry and to members of the other comparable professions.

Fifth, I was appalled to find engineers in important, creative positions yet deprived of the professional recognition they so richly deserved.

Sixth, I was proud and humble as well to look these men in the eye and to see in retrospect the years of devotion to public service and of self-sacrifice, years during which they "stuck to their jobs" despite inadequate salaries, improper use of their talents, and unsatisfactory working conditions, years dedicated in the truest sense to the "common weal."

Let us look at the salary record. In 1954 the national averages of salaries paid to engineers employed by state governments ranged as follows:

Chief Engineer	From $10,582 to	$11,793
Assistant to Chief Engineer	8,288 to	9,636
Construction Engineer	7,809 to	9,130
Design Engineer	7,269 to	8,574
Maintenance Engineer	7,952 to	9,203
Bridge Engineer	7,657 to	8,967
District or Division Engineer	6,996 to	8,375

Allowing for the increments and other improvements in employment conditions which have been effected since 1954, the salaries of professional engineers in the employ of the states fall far short of being commensurate with the duties and responsibilities performed.

Let me cite what I consider to be the twelve commandments for (any) new approach:

Salaries—It is incredible that leading industrial states, such as my own, could have been so blinded by the inertia of tradition and complacency as to fail to recognize the danger signals of dissatisfaction among engineering personnel which have been flying since the close of World War II. We have under way in Pennsylvania at the present time a Classification Survey which is almost ready for launching. This survey will achieve not only uniformity in grading but will also inaugurate salary schedules, which will be realistic and comparable with those paid in industry and by engineers in private practice.

Challenging Work—We have already in the Pennsylvania Department of Highways progressed a long way toward making certain that our round pegs are placed in round holes. We have instituted a system whereby the specific talents and potentialities of every engineer in our

employ are carefully assayed and evaluated and, as a result, our assignments are based not on "whom you know" but "what you know" and where you can do the most effective and constructive job. Our personnel director is a registered professional engineer trained especially in evaluating the qualifications and aptitudes of technical personnel.

Promotional System—We have ascertained by careful testing that unless the salary offered is far above the corresponding rate paid by industry, the engineering candidate is more concerned with advancement opportunities than with any other single factor. There is nothing more frightening to a young engineer than the prospect of being tucked away in a corner of a large organization where he will be passed over and forgotten. We must, therefore, have a package to sell which has as one of its principal stocks in trade, a vital and positive advancement program sparked by liberal and enlightened promotional policies.

Protection Against Dismissal—There is no single factor which goes farther toward dissuading the young engineer from accepting a position in a state department than the impression that he will be at the mercy of shifting political tides. An indispensable tool and key element is a merit system or civil service coverage which will protect the engineer from this uncertainty. In Pennsylvania, a bill encompassing this is presently before the legislature.

In-Service Training Programs—Engineering talent is one of the nation's most precious resources. The young engineer must be advanced as rapidly as his talents and abilities will permit. He must be assured opportunity to develop those talents and abilities so that he can assume ever-increasing responsibilities. Our training programs are being designed to aid and abet the young engineer in developing and exploiting both the known talents and the latent potentialities which ofttimes not even he suspects are present. This is a complete break with the past and discards once and for all the unrealistic and artificial concept of "sink or swim" practices. Unless our training programs are vital, intelligent and well conceived, our chances of attracting other than mediocre personnel and of retaining the qualified members of our present staffs will be slim indeed.

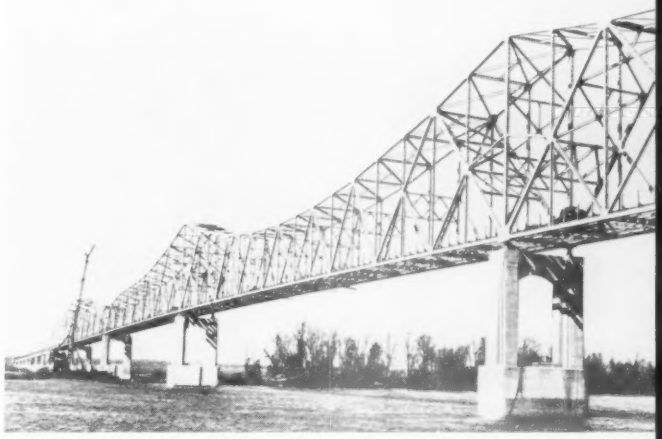
Periodic Salary Increments—This facet of our problem very obviously bears importantly on our ability to obtain and retain competent personnel. Within every engineering grade, there must be a wide increment range which will assure the engineer of guaranteed raises which will be contingent only on whether or not his job performance is satisfactory. This is a matter separate and distinct from reclassification which is inextricably bound with opportunity of advancement. In Pennsylvania, our classification survey will accomplish this.

Accumulation of Sick Leave and Vacation—Under present conditions, when we are straining every fibre to keep abreast of and to control our work load, we often have no alternative but to insist that many of our engineering personnel forego their vacations. There is no routine procedure established whereby the accumulation of vacation and sick leave is automatic and in many instances, unless special dispensation from the executive board is procured, our most valued and loyal engineers are penalized. This is an unfair and obsolete practice and should be corrected in any state where it still exists.

Health and Insurance Benefits—If we are to entertain any hope of maintaining our competitive position in the technical-personnel market, we must offer a health and life insurance program which will be comparable with those in effect in industry. The health insurance should cover both hospitalization and surgical phases and the life insurance plan should be similar to that granted Federal employees.

Unemployment Compensation—Despite the fact that most states enacted unemployment compensation laws many years ago, and that this coverage protects the common laborer, skilled worker and professional in industry, these benefits have in many states not been extended to the states' own employees. This is an intolerable inequity and should be remedied at once. Similarly, state employees retirement plans as presently constituted, are adequate only where the employee has advanced to a high salary and has accrued at least thirty years of service. Augmentation of these pensions by Federal Old Age Benefits coverage will assure the engineer the security he has a right to demand.

Recruitment Policy—Here is a fertile field where another complete break with the past is mandatory. Our programs must be informative, enthusiastic, colorful and challenging, for unless they are designed to appeal to the group for which they are intended, the results will be unavailing indeed. We do not require expensive or ingenious devices but to utilize to the maximum the implements already at hand. Motion pictures, booklets in color and lectures will bring to the student engineer the romance, the challenge, and the future in state government work. Put all these things together, interesting and imaginative motion pictures, colorful, informative and tersely written literature, and enthusiastic and well-informed speakers and you will have the implements to perform a sound and effective recruiting job. One thing more, streamline and pare to an irreducible minimum your employment procedural red tape, for our present methods are so cumbersome and impersonal and so fraught with obstacles that even candidates who are genuinely interested become discouraged and accept offers from sources which are bidding against you. Make certain that your representatives are personable, well fortified with the facts of the "State Government Story" and imbued with a spirit which will convince the young engineer that he is both wanted and needed. Schedule your interviews early and accord your representatives sufficient latitude and authority so that they are in position to offer jobs on the spot.



A graceful bridge: challenge to the state engineer.

Rigid Educational and Professional Standards—As

many of you know, I have been in state government service little more than a year; however, it was evident to me at once that there had never been in existence any well defined or firmly established educational and professional standards. As a result, the position of even our professional engineers was uncertain and vulnerable. Prestige is one of the most important considerations to an engineer as it is to any other professional and it can be realized in state government only by our absolute insistence on higher educational and professional standards, reinforced by providing optimum opportunities for professional advancement and recognition. If we accord professional recognition and respect from within our organizations, acknowledgement of our professional status by the general public and resultant prestige will soon follow.

Public Information Service—As stated earlier, the public is either misinformed or uninformed regarding the vital and often herculean work performed by our state departments. It will be an important contribution to professional engineering in general, if our state governments prepare and disseminate literature and films telling in bold and exciting terms the wondrous story of the engineering miracles performed each year. I am cognizant of the fact that in probably every state there is an annual or biennial report: however, these are usually thick volumes too formidable and technical to interest the casual reader. I am thinking of quarterly or semi-annual publications, presented in modern format, and replete with photographs, which will in simple forceful, laymen's language portray the exciting story of the essential role engineering plays in public service. We will never earn the respect and admiration of John Doe until and unless we remove once and for all the haze of misinformation and indifference which surrounds our activities. Engineering can proudly stand on its own merits but we must make certain its assets and achievements stand crystal clear for all the world to see.

A yoke of oxen, a new highway: a study in progress.

If the professional engineer is to assume his birthright and take his proper place as the indispensable instrument of progress, we in state government must put our house in order. Trial, experimentation, and a dynamic and forward looking approach to our problems must be the order of the day.—*End.*

Municipal and County Government

By Frank G. Manning, P.E.

The Author . . .

Mr. Manning

Frank G. Manning, P.E., is Chief Engineer, Department of Public Works, Jersey City, New Jersey. He received his B.S. in C.E. from Newark College of Engineering and an M.C.E. from New York University. He is a consulting sanitary engineer and is technical director, Jersey City Incinerator Authority. Mr. Manning was engineer for the Interstate Sanitation Commission from its inception in 1937 to 1950, except for service in World War II.

THE municipal engineer and the county engineer have a number of interests and activities in common. Their contact with the area and people they serve and with those directly responsible for government is much more intimate than that of the engineer in state or national service. In general, it may be truly said that their responsibilities embrace all the technical problems of their respective political subdivisions. They are, in a sense, the "general practitioners or county doctors" of civil engineering who would not enjoy the confining degree of specialization that is normally the lot of the engineer in higher echelons of government.

They have a basic function to administer specific engineering affairs of their communities together with an expanding field of fringe technical activities. These vary materially with the locality, with the size of the governmental unit, with statutory limitations placed on the unit by the state, and with a host of other factors. The administration of such routine technical affairs of government calls for an ability that can be acquired through normal experiences in years of service to the political entity. But this administration of routine technical affairs does not elevate the engineer to the level of true professional service. Should his status end there he is little more than a technical clerk and his position is analogous to that of any other clerk whose years of service and advancement by seniority have gained for him the title of chief of his unit of government. Many engineers have nestled in such positions and convinced themselves they have fulfilled their obligation to their communities.

The truly "professional" engineer aspires to higher things. His is an effective voice in government. Modern society expects and demands more and more in the way of public facilities and services. The local engineering executive should not only anticipate the need for improvement in public works and services—he must be an instigator to their accomplishment. He must be a major factor in the whole panorama from conception, through planning, development, realization and efficient operation and maintenance. Through his personal and social competence and professional standing he must speak, be heard and have his views respected and accepted by his elected superiors and by those who elect them.

The local public works program is his offspring and is subject to review by all interested citizens affected, as well as by his elected superiors. Frequently his recommendations play an important part in the political life of his superiors. In higher echelons of governmental service the direct individual influence is normally lost to the public and has a far lesser effect on the political life of his elected superiors. His counsels to the governing body and his public utterances must be words of wisdom, otherwise he will have lost his proper place in the sun. He should be the most advanced of the advance planners, endowed with a native ability to quickly, impartially and

tactfully evaluate, in a professional manner, projects and programs proposed by others. To reach his proper place in the affairs of government he must *seek* his full measure of professional responsibility and be professional in his every act. His engineering canons of ethics must be the foundation stone of his way of professional life in order that he will be beyond reproach, both political and personal.

There appears to be no question but that assignments to local engineers have gone far afield from civil engineering. This digression is certainly not confined to the smallest municipalities where the engineer is a department of himself. And let us be mindful of the fact that the change in public services and facilities is markedly on the upswing. Many of the current and ever increasing responsibilities of the local engineer are either of sub-professional calibre or are non-professional in their entirety. Such happenings are strange paradoxes in an economy of acute shortages of engineers and are poor inducements for recruitment of municipal engineers.

There is some small comfort in the report of survey by the International City Manager's Association published in their 1955 Municipal Year Book which shows that either the director of public works or the municipal engineer serves as director of the official planning agency in approximately twenty-eight per cent of all cities between 10,000 and 50,000 population.

The annual salaries paid to municipal engineers as reported in the I.C.M.A. Yearbook are shown in table 2.

TABLE 2
ANNUAL SALARIES OF CITY ENGINEERS

Population of Municipality	*No. of Cities Reporting*	*Mean Average Salary*	*Lowest*	*Highest*
Over 500,000	9	$12,122	$9,000	$15,672
250,000-500,000	14	9,463	7,200	13,380
100,000-250,000	43	8,049	4,943	12,900
50,000-100,000	89	7,452	4,232	15,204
25,000- 50,000	168	6,560	2,800	12,540
10,000- 25,000	326	6,200	2,100	15,500

TABLE 2-A
ANNUAL SALARIES OF MUNICIPAL ENGINEERS IN NEW JERSEY
(Source: N. J. Department of Civil Service)

Population of Municipality	*No. Reported*	*Average Salary*	*Lowest*	*Highest*
Over 250,000	4	$11,050	$10,260	$12,600
100,000-250,000	4	7,835	6,902	10,440
50,000-100,000	5	7,565	5,400	9,200
25,000- 50,000	9	7,897	6,200	9,360
10,000- 25,000	6	7,868	4,256	11,050
Less than 10,000	3	5,660	3,130	8,000

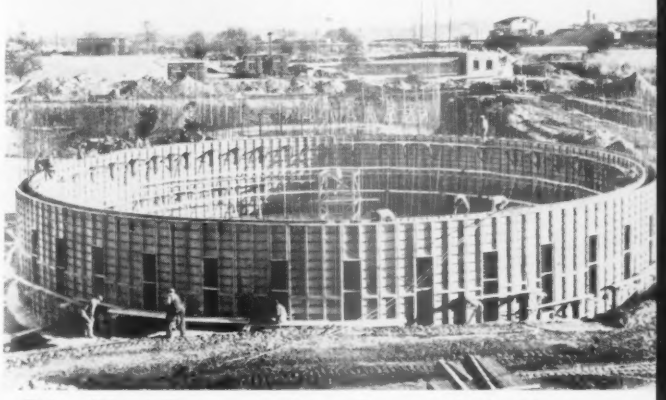
TABLE 2-B
ANNUAL SALARIES OF COUNTY ENGINEERS IN NEW JERSEY
(Source: N. J. Department of Civil Service)

Population of County	*No. of Counties Reported*	*Average Salary*	*Lowest*	*Highest*
Over 500,000	3	$11,245	$10,000	$13,236
250,000-500,000	4	9,500	7,500	10,500
100,000-250,000	5	8,784	6,500	12,000
50,000-100,000	3	7,350	6,750	8,000
25,000- 50,000	3	6,620	5,500	7,860

The above tabulation for county engineers in New Jersey includes eighteen of twenty-one counties. Figures for Gloucester and Salem Counties which recently adopted Civil Service are not yet available, and Somerset County has not adopted Civil Service.

Note: In addition to above tabulation nine municipalities in the 10,000-25,000 population range reported services of engineer on part time basis with a range of $300 to $2,800 per annum. In this group nine municipalities reported no salaried engineer; consultants are engaged as required. In municipalities with populations of less than 10,000, three reported services of engineer on part time basis with a range of $600 to $3,130 per annum; twelve municipalities reported no salaried engineer; consultants are engaged as required.

The "Doctrine of Small Salaries for Public Servants" long popular in England and in this country since pre-Revolutionary days carries the principle that every man should welcome the privilege of serving his community, and that office holding, like virtue, was its own reward. Under this theory government was run by amateurs. The professionals had to earn their income elsewhere and if a sense of civic duty obsessed them the contribution of a token of their time and professional ability allayed their qualms. Modern society has been slow to grasp the fact that the professional service is an essential part of public administration. The affairs of city government can no longer be entrusted to amateurs. The public works of today require the skills of experts—experts who should have compensation commensurate with their worth. Unfortunately, the salaries paid our professional engineers in municipal government are far from adequate. A glance at Table 2 confirms that. Think of the proportionately lower salaries paid to the capable professional engineering assistants in the larger municipalities, and compare them even with the wages of skilled trades employees of the same unit of government.



This million-dollar sewage plant will protect the health of the citizenry.

Most of the competent engineers are attracted elsewhere. The city gets what it pays for—or in most cases considerably less. They save pennies on their payrolls and lose thousands of dollars in poor planning, in work inefficiently done. Something has to be done to attract the young professional engineer to municipal service. But in these days of shortages more is required. In-service training, subsidized advanced schooling and other programs have to be initiated on a broad scale in order that the burden of sub-professional activities may be lifted from the professional engineer and yet placed in capable hands. Unless the municipal engineer has time for truly professional service to his community he is doing the work of a skilled craftsman and may only be paid accordingly.

Some Observations on the Status of the Professional Engineer in Local Government

1. "The professional engineer employed in county and, more particularly, in municipal government is doing a considerable amount of sub-professional and non-professional work as has been demonstrated."

Those in authority find the engineer most qualified to handle all the routine responsibilities of the public works

program. Consequently, he becomes the victim of circumstances and of political expediency.

2. "He is performing sub-professional and non-professional work because most engineering departments of local government are understaffed."

The average local engineering department is understaffed not only in professional assistants but also in competent technicians capable of relieving the municipal engineer of many routine sub-professional technical duties. Routine street and sewer repair operations, minor construction and maintenance and other field operations can be entrusted to a capable field superintendent.

3. "Most engineering departments of local governments are understaffed because salaries paid to professional engineers and competent technicians are appreciably lower than salary levels for comparable qualifications elsewhere."

The bulk of engineers qualified for municipal service has a background of education and experience in civil engineering. If the background is in other branches of engineering, industry has its arms extended in welcome with lucrative opportunities to offer. Those with a civil engineering background have similar offers available from

Beneath this lovely park is a 6-level parking garage—thanks to city engineers.

the construction industry, from railroads, public utilities, the iron and steel industry, petroleum refiners and other manufacturers, and even from the consulting engineering firms and the state and National Governments. Similar opportunities are available at higher wages in industry, in private engineering firms and in higher levels of government to competent technicians.

4. "The foregoing problems exist because the local engineer has not sold himself, or has not had the opportunity to sell himself, to his officials and to his community in terms of his true professional value to both."

If the municipal engineer has had the opportunity to render truly professional service and has failed to do so he will continue to be recognized as a trained technician deserving of technician's pay. His officials and his community should not be expected to heed his request for additional professional help since the professional help they have is not rendering professional service. He must either obtain or train technicians with sufficient competence to do his sub-professional work; a professional salary level should come with recognition of his professional service.

If the municipal engineer has not had the opportunity to render truly professional service he can be expected to be found buried in a mound of sub-professional and non-professional duties. His is a worse plight, perhaps not of his own making. He must strive to obtain professional recognition in the top level of local governments. If time is truly the road block in this direction, which is seldom likely, he must find the time. If new personnel are not available he must organize and train present personnel, in whatever current occupations, to a degree of competency to handle his sub-professional duties.

5. "If the municipal engineer, rendering and recognized as rendering services of high professional value, finds himself in a community too small or too impoverished to pay the value of his services, he owes it to himself to move to greener pastures and leave his community to the private consultants."

Usually, this will end ultimately with a belated effort to recapture his services on his basis.

6. "Salary levels for professional services are not too low in all municipalities, judging by recognized professional salary schedules."

There are municipalities in which minimum recommended salary schedules for professional services are reached or exceeded.

7. "There are many advantages to public employment on the local level for engineers, particularly under a public service merit system."

(1) Job permanency enables him to reside in one place and take roots with his family.

(2) A guaranteed opportunity exists for promotion based on merit, fitness and service.

(3) A pension plan.

(4) A hospitalization plan.

(5) A vacation plan.

(6) A sick leave plan.

(7) Social security, which is elective in some cases.

(8) A satisfaction that comes with being a professional asset to the community; with being a part and an instrument in its development.

8. "Where a public service merit system exists, the municipal engineer active in his professional society will find that the professional society can develop a mutual assistance and cooperation liaison with the Civil Service Administration that can redound to the advantage of the engineer in government."

This has been demonstrated in New Jersey with a good measure of success. The cooperation between NJSPE and the New Jersey Civil Service Commission has: (1) insured the validity of its examining process by providing pertinent information and advice to examiners; (2) assured the requirement that an applicant possess a professional engineer's license issued by the N. J. State Board; and (3) afforded the Civil Service Commission the opportunity to recommend the NJSPE Schedule of Salaries to local officials when positions are being evaluated.

CONCLUSIONS

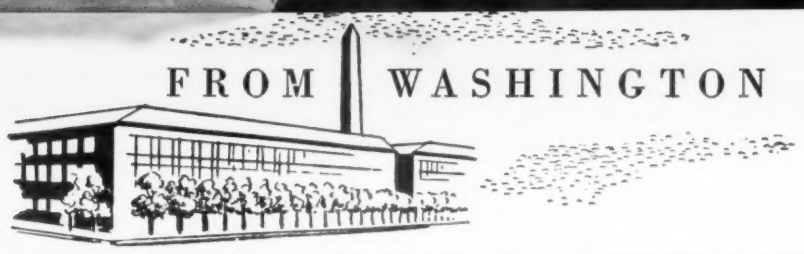
1. Public officials are not fully aware of the professional value of the professional engineer in local government.

2. The professional engineer in local government has not made a deliberate and conscious effort to attain his true professional status.

3. The municipal engineer can improve his economic status by finding ways to accomplish more professional work and less sub-professional work.

4. The professional engineering society must develop a harmonious and close cooperation with the established public service merit systems.

5. The professional engineering society should make a concerted effort to improve the economic status of the engineer in local government by representations on behalf of its members; this applies particularly where a society salary schedule exists.—***End.***



By
Milton F. Lunch,
N.S.P.E.'s Legislative Analyst

THE FUTURE OF POINT FOUR

SHORTLY before he was stricken, President Eisenhower delivered a commencement address at Baylor University which presented a new concept of a potentially far-reaching nature in the field of technical assistance. At the same time, the President touched off what is now a minor debate about the future of the Government's foreign technical assistance activities—commonly known as the Point Four program—but which may develop into a major debate of long range implications to engineers and scientists.

The President's general theme at Baylor was concerned with what people as individuals, and through private organizations, can do to help the underprivileged peoples of the world in their desire for economic betterment and thus maintain them within the community of free peoples. He urged more people-to-people contacts and then turned to the matter of specific assistance in these words:

"For examp'e, the whole free world would be stronger if there existed adequate institutions of modern techniques and sciences in areas of the world where the hunger for knowledge and the ability to use knowledge are unsatisfied because educational facilities are often not equal to the existing need.

"Do we not find here a worthy challenge to America's universities and to their graduates? I firmly believe that if some or all of our great universities, strongly supported by private foundations that exist in number throughout our land, sparked by the zeal and fire of educated Americans, would devote themselves to this task the prospects for a peacetul and prosperous world would be mightily enhanced."

The President explained that each school would help each nation develop its human and natural resources and we would gain new knowledge of the "priceless values of another people's traditions and proud heritage," while they would gain "knowledge in the technical and scientific fields where we have had an earlier start."

Some of the immediate reaction to the President's suggestion has been adverse, or has challenged the idea that foreign technical assistance work can be or should be taken over by educational institutions on their own or with the financial support of private philanthropic organizations. One "human relations" reaction was described as "raised eyebrows" because the President took no note in his speech of the present activities of U.S. educational institutions throughout the world. University technical cooperation activities on a world-wide basis have been in effect for a number of years. Through contracts with the International Cooperation Administration, 52 U. S. schools are executing 81 contracts in 36 countries. The scope of geographical coverage is shown on the map.

Dismissing this point as an unintentional "slight" of no importance, the more basic argument has been raised that the universities are certainly in no position to finance an expanded foreign technical assistance program and that it is unrealistic to expect private organizations to put up the kind of money which would be required for an expanded program. Former Senator William Benton of Connecticut, who has made a special study of foreign technical assistance, commented that "if all of the uncommitted 1957 income of all the major American foundations were to be devoted to President Eisenhower's suggestion, the total would not remotely meet or match the need or the challenge implicit in it." Senator J. William Fulbright, father of the existing student-teacher overseas exchange program, offered criticism on the ground that the Administration has reduced the funds for the educational exchange program while the President is calling for a stepped-up operation in this area.

Senator
Mike Mansfield
of
Montana

The point has been made also that there is already great difficulty in finding qualified engineers, scientists and other skilled personnel in sufficient numbers to man the limited program now in effect. Those who raise this point ask where and how the greater numbers could be recruited if the program is expanded and point out that the teaching staffs of the universities are now at dangerously low levels.

The critical manpower point was emphasized before the President's speech in a report of the Senate Subcommittee on Technical Assistance Programs (S. Rept. 1956) under the chairmanship of Senator Mike Mansfield of Montana, which reviewed all of the major aspects of the Point Four operation after a long study. While endorsing a continuation of the technical assistance program, the Subcommittee found a number of faults and unresolved problems. One of the major findings was that "a limiting factor on the size and scope of American technical assistance programs is the supply of technical personnel

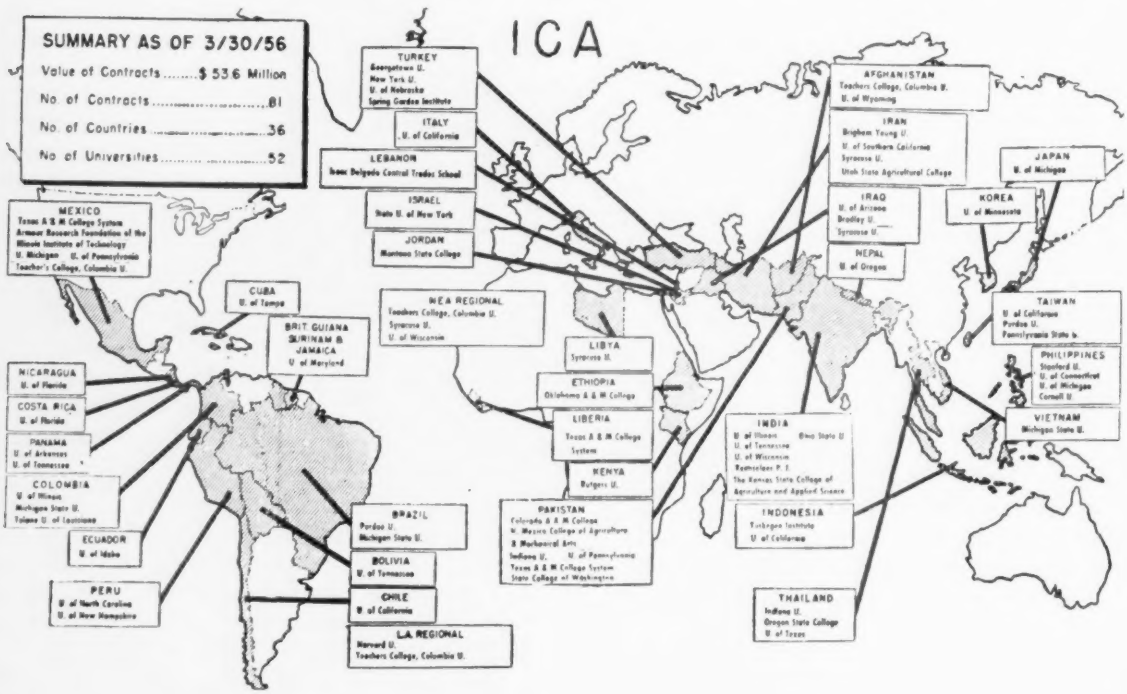
qualified to carry out such programs." The senators said "the shortage of technicians is a national problem which affects other Government programs, private business, and educational institutions as well as technical assistance" and beyond the scope of the Subcommittee's responsibilities. "In the meantime," they continued, "except in cases of the most extreme urgency, it may be better not to try to carry on a program at all than to attempt it with mediocre technicians." The report noted that those who serve in the program must be competent not only in a particular specialty, but should be familiar with the language, customs, and problems of the country to which assigned, and should have the qualities of temperament and understanding to work with foreign peoples. "The technician should, in short, be not only a technician but also something of a linguist, a diplomat, a teacher, a sociologist, a cultural anthropologist, and a missionary." To this they added the obvious comment: "The number of Americans who meet all of these qualifications is not large, to put it mildly."

The Mansfield Subcommittee raised another major point which has come to the fore again following the President's Baylor speech—what is the future of the university foreign contract operation? Evidently, the universities were not contacted prior to the President's suggestion for their assumption of greater operations. In November, 1955 a so-called Conference on University Contracts Abroad stated that "a clear statement of public policy by the United States Government is required in order to provide for effective long-range planning and full integration of the program within contracting institutions." It was stated that the universities face increasing enrollments and other formidable pressures, and thus are deeply concerned about their ability to plan an international program without a specific charter from the Government. Recently, spokesmen for the universities came to Washington to make sure the Administration wanted them to continue the overseas program. They pointed to the teacher shortage and other problems and reportedly were told that the President considers the program vital. The Mansfield Subcommittee stated that "as university participation in technical assistance has increased, so have the demands of to the Subcommittee not unreasonable for the universities to want to know whether they should plan to meet these demands on a short-term or long-term basis."

These developments may push back into the limelight earlier proposals for the creation of "West Points of Point Four" in which Federal scholarships in engineering, science and other technical subjects would be granted, in return for which the "cadets," upon graduation, would be required to serve in overseas technical assistance assignments for a stipulated number of years.

Certainly, these many facets of the over-all future of Point Four will not be solved legislatively this year by a Congress now less than a month away from a final adjournment. But the President's Baylor speech has stirred up the kind of high-level discussions which may lead to significant developments in the 85th Congress.

UNIVERSITY CONTRACTS IN OPERATION BY COUNTRY



Employment Practices, Consultants' Group Receive Board Action

A check-list Criteria of employment practices for the guidance of professional engineers and their employers, and an Ideal Registration Law were among the major topics for official Board action at the NSPE annual meeting in Atlantic City, May 24-26.

The Criteria were presented to the Board as a recommendation of the Society's Engineer-in-Industry Committee, and were printed in check-list format.

The Criteria cover specific categories of engineering career development, starting with the recruitment of the engineer and leading through the various phases of his experience. The questions on the check-list suggest the responsibilities of the employer to his professional employees, and the latter's responsibilities to the employer.

Shown is the plaque recently presented to Secretary of the Air Force Donald A. Quarles (see other cut below) upon his being given the NSPE Award for 1956 for his service to the engineering profession.

Topics included in the Criteria are recruitment, indoctrination, technical, administrative, personality, and professional development of the individual, salaries, engineering titles, personnel practices, and termination policies.

In other principal action at the Atlantic City meeting, the Board adopted an amendment of the NSPE bylaws to provide for the creation of functional sections on a national level (see cut, page 31).

The functional sections, to be established by the Board, will be made up of NSPE members having common professional problems and interests. The bylaw amendment states that the functional sections "shall be so conducted as to provide effective forums for discussion and united action on the part of members grouped according to type of professional employment, for the enhancement and betterment of professional recognition and status, and other matters of mutual welfare."

Taken under consideration by the Board was an Ideal Registration Law for professional engineers. Major engineering societies will be invited to review the Ideal Law before it is officially adopted by the National Society.

Robert J. Rhinehart, newly elected president of NSPE, stated that the Ideal Law is designed to be "a much needed step in the direction of achieving uniform standards of professionalism for registered engineers on a nation-wide basis."

At the final banquet session, Air Force Secretary Donald A. Quarles was presented with the NSPE Annual Award (see cut) for meritorious service to the engineering profession.

Speaking on "The Role of the Engineer in National Defense," Secretary Quarles told his audience that national security depends not only on our technology but also on the quality of our scientific manpower.

He pointed out that at the end of World War II we had twice the technological manpower of the USSR but they are seriously challenging us today.

Dr. Maynard M. Boring, president of the American Society for Engineering Education, and manager of technical personnel development at General Electric Co., Schenectady, N. Y., told a luncheon audience that industry says it needs 68,000 engineers, but "if we gave them 68,000 they wouldn't know what to do with them."

Dr. Boring added that if there should be a ten per cent drop in the national economy "we would have engineers running out of our ears."

In his "State of the Society" address, outgoing President Allison C. Neff outlined seventeen "common sense ideas"

NJSPE Awards

At the NJSPE Annual Awards Dinner, May 25, the Annual Engineering Award was presented to Morris Goodkind, director and chief bridge engineer, State Highway Department, while the Annual Citizen's Award was given to Carl W. Keuffel, president of the precision instrument firm of Keuffel & Esser. The presentations were made by Merton S. Adams, NJSPE president.

Outgoing NSPE President Allison C. Neff, left, congratulates Secretary of the Air Force Donald A. Quarles as the defense official accepts the NSPE Award for 1956, at the Annual Meeting held recently in Atlantic City.

Chairman Trigg Twichell of the Membership Committee presents his report to the Board of Directors. See photo on page 32 for more on membership. Outgoing President Allison C. Neff is on the left.

which he said he gathered after attending twenty-nine state society meetings during his term of office.

Among these, Mr. Neff included ideas concerning state and local chapter publications, nominating and electing officers, committee meetings, and cooperation with other professional groups.

He emphasized that state societies should invite national officers to attend state meetings.

A well-attended highlight of the annual meeting was the series of four professional conferences covering engineers in industry, education, government, and private practice. (A complete review of the papers presented at the conferences will be found on pages 18-26.)

Between the professional meetings, regional luncheons, conferences, and other sessions, the members and their guests viewed exhibits from more than sixty industrial firms (see box). A special exhibit showing scale models of the inventions of Leonardo Da Vinci was also displayed.

The professional sessions continued through Saturday afternoon when the meeting was finally adjourned. Highlights of the official reports and action taken by the Board follow.

CHAPTER ACTIVITIES

As a culmination of two years effort, the Chapter Activities Committee has substantially completed a program of organization for effective action which depends on productive committee work at national, state, and local levels, and which provides the tools for systematically indoctrinating and stimulating state and chapter officers and committees. The Committee has prepared a series of monographs outlining in concise terms, suggested committee activities and programs, duties of and opportunities for officers, suggestions for improving meetings, publications, and programs which can be produced and distributed at low cost to the society. The completed monographs are:

1. Organization for Effective Action
2. Indoctrination Conference for Chapter Officers and Committees
3. Meeting Programs, Attendance, and Fellowship
4. The Importance of Chapter Publications
5. Helping the Young Engineer
6. Promote Ethical Practice
7. NSPE Ladies' Auxiliaries
8. Functional Group Activities

It became evident during the preparation of the monographs that an effective means must be provided to communicate to and indoctrinate chapter officers and committees—hence, the preparation of the monographs on Organization for Effective Action, and Indoctrination Conference for Chapter Officers and Committees. Because of the low cost of the monographs, it was planned that the monographs could be revised yearly, or as often as necessary, to reflect the society's changing program of action.

Monographs still in preparation are those on education and legislative committee problems, while monographs on membership and public relations have been canceled because of the effective publications by those respective committees which would only result in duplication of effort. Supplementing the monographs, the Committee has prepared a booklet which is issued to new incoming chapter presidents entitled, *Welcome, Mr. President*, which is designed to be an inspirational introduction to the myriad duties and responsibilities that a chapter president faces.

The Committee is now turning its attention to spotlighting the most effective tools available to increase member interest in chapter activity which has been developed by various chapters throughout the society. Recently, chapter presidents' attention was called to an outstanding yearbook prepared by the Fresno Chapter of CSPE with a cost and time analysis which pointed out that any chapter could produce a comparable yearbook, if desired, at low cost and with a remarkably small amount of effort. It is planned to distribute information on an outstanding chapter meeting notice and bulletin issued by the Erie County Chapter, NYSSPE, and a unique and effective means for financing a chapter publication used by the Pittsburgh Chapter, PSPE.

Board Action: Report Accepted.

CONSTITUTION AND BYLAWS

Submitted herewith is a series of proposed bylaws amendments, captioned "Bylaw 22—Functional Sections." This proposed new bylaw is intended to provide for the creation of functional sections on a national level. (See page 41, Employment Practices report.)

Our proposals are believed to express the combined thinking of the Board of Directors, the Executive Committee, and the Engineering Practices Committee.

It is considered by the Constitution and Bylaws Committee that the proposed amendments afford the necessary machinery to put "Functional Sections" into operation, as the demand develops, and, at the same time, satisfactorily safeguard the best interests of the National Society of Professional Engineers.

It is the recommendation of this Committee that the Board of Directors instruct the Constitution and Bylaws Committee to pre-

Here are the firms and organizations displaying exhibits at NSPE's 32nd Annual Meeting, May 24-26, in Atlantic City, N. J.

Kingston Trap Rock Co.
Borden Metal Products Co.
Aero Service Corp.
Johns-Manville Corp.
A. C. Schultes & Sons
Triangle Conduit & Cable Co.
Portland Cement Assn.
Jersey Testing Laboratories
Robinson Aerial Surveys, Inc.
General Electric Co.
International Business Machines Corp.
Morse Boulger Destructor Co.
New Jersey Turnpike Authority
Karol-Warner
Keuffel & Esser Co.
Raymond Concrete Pile Co.
Klemp Metal Grating Corp.
R & R Equipment Company, Inc.
Pennsylvania Wire Glass Co.
Buff Industries Inc.
New York Trap Rock Corp.
Essex Co. Board of Freeholders
Koh-i-Noor Pencil Co. Inc.
Drafting Materials, Inc.
Warren-Knight Company
Abrams Aerial Survey Corp.
Foundation Services Inc.
Fluores-O-Lite Co.
Warren Engineering Co.
Brick and Tile Corp.
Arnolt Construction Co.
Kern Instruments Inc.
Kerr Concrete Pipe Co.
Borings Soils & Testings Co. and Miller Safety Markers
Huffman-Wolfe Co.
The Vestull Co.
Sonoco Products Co.
Manu-Mine Research & Development Co.
John J. Nesbitt Co.
W. P. Gilbert Co.
Westinghouse Electric Corp.
L. L. Ridgway Co. Inc.
Limestone Products Co.
Lock Joint Pipe Co.
Jack Ammann, Inc.
Inertol Co. Inc.
Utility Pipe & Supply Co. and Allied Equipment & Supply Co.
Associated General Contractors of N. J.
Charles Bruning Co., Inc.
Walker Poroswall Pipe Co.
H. B. Smith Co. Inc.
Harvey Hubbell Inc.
W. D. Virtue Co., Inc.
Camden Lime Co.
N. J. Bell Telephone Co.
H. H. Robertson Co.
Jenn-Air Products Co., Inc.
Encyclopaedia Britannica Inc.
Campbell Foundry Co.
Eugene Dietzgen Co., Inc.
Layne-New York Co., Inc.
Engineers Company, Inc.
Newark College of Engineering
Rutgers College of Engineering
Fairleigh-Dickinson College of Engineering
New Jersey Society of Professional Engineers

pare an amendment to the Constitution that will recognize and validate the fact of functional sections.

Bylaw 22—Functional Sections

a. The Board of Directors may authorize the establishment of national functional sections comprising members having common professional problems and interests, to operate under the Constitution and Bylaws of the National Society. The Board shall define the scope of activities and the sphere of interest of such sections.

b. The functional sections shall be so conducted as to provide effective forums for discussion and united action on the part of members grouped according to type of professional employment, for the enhancement and betterment of professional recognition and status, conditions of employment, and other matters of mutual welfare.

c. Participation in any national level functional section(s) shall be open only to members of the National Society having professional problems and interests in common with the section.

d. The officers of each functional section shall consist of a chairman, vice chairmen and a secretary. Officers shall be elected by the section participants at a general section meeting held at the time of the annual meeting of the Society and shall hold office for a period of one year. The vice chairmen shall be selected to provide a geographical representation.

e. Officers shall assume the duties usually performed by officers in the same positions, subject to rules which may be adopted by the section and approved by the Board of Directors. Priority of succession of vice chairmen to the chairman's duties, in case of need therefor, shall be determined by means satisfactory to the section.

f. The officers shall constitute the Section Executive Committee of the section. The Section Executive Committee shall maintain contact with similar functional sections in the various member state societies and shall conduct the business and activities of the section during the time between general meetings and shall make necessary arrangements for the general meetings.

g. Each functional section shall hold at least one general meeting each year at the time and place of the annual meeting of the National Society. The Section Executive Committee may hold meetings in addition to the annual meeting. Meetings of the Section Executive Committee shall be open to section participants.

h. When considered necessary for promoting or forwarding its special objectives, any functional section may establish a fund for that purpose, the method of securing which shall be approved by the Board of Directors. The treasurer of the National Society shall be the custodian of all functional section funds, the expenditure of which shall be subject to the approval of the Section Executive Committee.

i. Minutes shall be kept of all meetings of functional sections and of their Section Executive Committees, and copies thereof shall be filed in the office of the National Society as soon as possible after the close of such meetings. An annual report outlining the section's activities for the year, including financial statement, officers, etc., shall be made to the Board of Directors.

j. Each functional section shall have one nonvoting representative on the Board of Directors, who will be permitted to present and discuss the section's business under the normal rules of procedure.

k. All proposed programs, as well as activities to formulate or to implement existing National Society policy, shall be submitted for approval to the Board of Directors. All public statements, recommended policy action, or any action affecting other functional sections or other segments of the Society shall be processed and released in accordance with the regular procedures of the National Society.

l. The Board of Directors shall either adopt without major modification, reject, or return for further consideration any recommended policy or statement submitted by any functional section.

m. The Board of Directors may dissolve any functional section upon request of that section, or if a functional section fails to comply with the Constitution and Bylaws or the policies of the National Society.

Board Action: Amendment Adopted.

EDUCATION

One of the most challenging problems confronting the profession at this time deals with the preparation of young men at the high school level to enter the engineering schools. This will require either a definite change in the generally accepted engineering school curricula whereby the first year, as a matter of course, will make up for the deficiencies of all young men—that percentage appearing to be larger each year—or it will demand some conscious effort on the part of educators to make up these deficiencies through insistance of the teaching of required courses in the high schools of the nation.

Newly elected chairman, A. C. Kirkwood, third from right, of the NSPE Fuctional Section for Engineers in Private Practice is shown discussing plans with fellow members. See story page 29 and Constitution and Bylaw report at left.

It is disturbing, however, to learn that only one-sixth as many students study science and mathematics in the secondary schools in America today as compared with the year 1900. It is equally interesting to note that a disproportionately large percentage of engineering students require a five-year college curriculum today because of deficiencies they bring with them into the engineering school from the secondary school.

Providing secondary schools with adequate teachers of science and mathematics together with stimulating the more capable individuals to study these courses appears to be one of the most vital needs pertinent to the future of engineering education in America.

A second important and challenging problem facing engineering education as we envisage the future is the problem of economics. In nearly every engineering school in America during the past fifteen years the cost per student has increased from 100 to 300 per cent. Unless there is some relief from this phase of the problem, engineering education can price itself out of the business.

The Federal Government is particularly cognizant of this problem especially in the light of the need of scientists and engineers in connection with national defense. At this time probably more legislation is being conceived around the Federal Government assisting in the cost of education than ever before in history. Numerous legislation has been proposed and bills written. Other plans are in the discussion stage. Professional engineers should become familiar with this legislation and assist in determining which is most advantageous to the young man, the profession, and the nation.

One of these bills, "Defense Scholarships Act," would provide competitive examination as a result of which perhaps a thousand students would be selected each year, their tuition and all other expenses being defrayed by the National Government for the period of their study. A second bill, "National Defense, Scientific Education Act," would provide free education each year to approximately twenty-five thousand candidates.

A revision of the tax law would permit corporations to deduct a percentage of their income if contributed to an accredited engineering school. The desirability of extending the G. I. Bill of Education Program has been discussed with the idea that young men and women serving anywhere at any time in the Armed Forces would be offered opportunity to further their study in higher education.

Further evidence of the Federal Government's interest in the problem of education is evidenced by a proposed joint House and Senate Committee on scientific research designed to meet the problem of training adequate manpower in the scientific and technological fields. This Committee would be composed equally of House and Senate members. It would be responsible for and study many aspects of manpower problems, cooperate with executive agencies, industry, and educational institutions, and advise the appropriate legislative committees in the engineering and scientific manpower area.

A more recent bill has been proposed whereby the Federal Government would grant 5,000 scholarships annually conditioned on the students agreeing to serve four years with the Federal Government after graduation. These scholarships would grant full tuition plus $100 living expenses a month while in school. Additional legislation is being discussed wherein the Federal Government would make available to all colleges and universities funds to augment teacher's salaries.

Winners in the NSPE membership contest receive handsome plaques for their efforts. From l. to r.: Harvey W. Pierce, Fla.; J. R. Kirby, N. D.; G. W. McCullough, Okla.; L. M. Dunn, Michigan; and Paul Harlamert, Ohio.

Another phase of engineering education which is of interest and importance to the professional engineer deals with the subject of technical institutes. With certain types of engineering employment and with certain types of individuals it would appear that just as much benefit may be derived by the student and the profession by pursuit of courses in technical institutes rather than the four-year program.

Considerable study is being given by educators to ways and means of finding good teachers and improving their status. Educators are attempting to discover means whereby the engineering potentialities of a high school student which would be reflected in his success in pursuing engineering studies can be measured.

Considerable discussion has been devoted to determining the responsibility of the university in contacting high school students. There is some feeling at this time that there is a wide line of demarcation between the organization, staff, and students in high schools, and those in the recognized universities.

Board Action: Report Received.

ENGINEERS-IN-EDUCATION SUBCOMMITTEE

As reported previously, the Subcommittee is primarily considering several aspects of a study of salary statistics as they apply to engineering teachers. A decision to be made is whether or not NSPE should conduct a survey of the engineering colleges to obtain the desired statistics. In this connection it was considered necessary, first of all, to secure and study data from surveys already conducted. The following publications and reports contain helpful information and have been secured by the Subcommittee.

1. "Professional Income of Engineers," 1953—EJC.
2. February 1954 issue of *Higher Education*, a publication of the National Education Association.
3. "A Survey of Teachers' Salaries in Engineering Schools and a Comparison of these with Salaries Paid to Engineers in Non-Teaching Employment and with Teachers' Salaries in other Professional Schools," June 1949, ASEE.
4. "Survey of Salaries Paid to Electrical Engineering Teachers in Major Institutions in the United States" by M. C. Hughes, Head of Department of Electrical Engineering, Texas A&M College, College Station, Texas.
5. "After the Great Ford Foundation Gift . . . What Still Remains to be Done to Provide Decent Faculty Pay," McGraw-Hill Publishing Co., Inc.
6. Pertinent NSPE reports.

Although some of the above sources contain valuable information regarding salaries of engineering teachers as compared with those of teachers of other learned professions, it would seem that ways and means should be devised to bring the statistics up to date. Also, there seems need for a study on ways and means by which NSPE might promote more adequate compensation for engineering teachers, such compensation to be commensurate with the qualifications required in each instructional rank and more nearly comparable to other professional schools. The breakdown might include preparation, previous teaching, professional experience, etc.

Board Action: Report Accepted.

ENGINEERS-IN-INDUSTRY SUBCOMMITTEE

RECOMMENDED FOR BOARD ACTION

1. Criteria for Professional Employment of Engineers. ***(See complete story in August issue.)***

We recommended that the Board of Directors approve the Criteria for Professional Employment of Engineers for publication by NSPE. The establishment of such criteria is intended to be a guide for both the employed engineer and his employer.

The membership of the Engineer-in-Industry Subcommittee has been, with one exception, the same since the first organization of a committee to deal with the problems of engineers in industry in 1954. This continuity of membership has been beneficial in the accomplishment of the many actions and studies, since much of the early activity dealt with defining the problems of engineers employed in industry. With this common definitive background, the Subcommittee has earnestly sought recommended solutions to many immediate and long-range problems.

CRITERIA FOR PROFESSIONAL EMPLOYMENT OF ENGINEERS

The Criteria has been the major project of the Subcommittee during this administration. The preparation of the final draft has been accomplished with the attitude of personal responsibility on the part of the Subcommittee members for NSPE policy regarding engineering employment practices in industry. We hope that the Criteria will be a guide to the employed engineer in determining proper attitudes and practices. Management may be guided by the suggestions for establishing a better climate in which the employed engineer can make the best professional contribution.

WESTINGHOUSE ELECTRIC ENGINEERING EMPLOYEES vs. NATIONAL LABOR RELATIONS BOARD

The change in NLRB policy with regard to decertification of professional employees from heterogeneous unions was brought to the attention of the Subcommittee in the case of professional pharmacists. As reported to the Board of Directors in February 1956, the National Labor Relations Board had deviated from past policy by denying a decertification election to professional employees (pharmacists) represented by a heterogeneous union. NSPE filed a letter of protest with the NLRB with respect to this new policy and at the time of the February Board meeting we were awaiting the NLRB reply. Since that time the NLRB has issued a similar decision involving 22 engineering employees of Westinghouse at Jersey City, New Jersey, who are represented by a trade union. The NLRB decision again held that professional employees could not be separated for voting purposes in a decertification election. The decision in the Westinghouse case was in effect a rejection of the NSPE position as sent to the Board. In addition, the Board later notified NSPE by letter that it would not accede to our views.

These developments were reviewed carefully by the Executive Committee which decided that if the engineering employees at Jersey City should take the NLRB decision to court, NSPE should seek to intervene in the case as a friend of the court in order to present the principle involved which effects the entire profession. The court case has now been filed and NSPE plans to offer a brief in support of the professional principle. The Executive Committee action on this matter will be presented to the Board as part of the Executive Committee minutes.

COUNCIL OF WESTERN ELECTRIC TECHNICAL EMPLOYEE vs. WESTERN ELECTRIC COMPANY

Action was taken at the last Board meeting approving the Subcommittee's recommendation that NSPE not participate in the above court case. There has been a considerable interest in the Subcommittee's report to the Board, which gave a detailed explanation of the case and the reasons NSPE declined to intervene. Since that time a District Court decision has been rendered which upheld the company in part and the union in part. The company has appealed this decision and the appeal is now pending. In addition, an NLRB field examiner has dismissed the union's claim that the company did not bargain in good faith. No further NSPE action is contemplated in this matter other than to follow the developments and report the newsworthy items in the Newsletter.

MINIMUM SALARY LEVEL FOR PROFESSIONAL EMPLOYEES UNDER WAGE-HOUR LAW

Since the last Subcommittee report, there have been no major developments with respect to the pending action before the Wage-Hour Administrator. NSPE has recommended that a minimum salary level not be continued as part of the definition establishing professional status and further recommended that registered engineers should be placed in the same status as doctors and lawyers who are not subject to the minimum salary test. No further action or developments on this matter are expected until the hearing officer issues his report.

(*Continued on page 41*)

N.S.P.E. Believes

THE ART OF SPEAKING

BY PAUL H. ROBBINS, P.E.

Executive Director

N.S.P.E.

THE current high demand for engineers has generated some interesting evaluations of those who have chosen this career. There has been considerable soul searching by groups both within and without the engineering profession. The professional societies have taken more seriously than ever before their responsibility of evaluating the quality of the training and experience which goes to make up the successful engineer. Management groups, personnel people and industrial relations executives have endeavored to determine motivations and rewards which stimulate members of the engineering profession.

A common observation which has emerged from many of these studies is the necessity for engineers to be articulate and to be able to express themselves well, not only to put across the important elements of engineering developments, but to apply the clarity of thinking for which an engineer is trained to the many problems to which the engineer as a citizen should direct his attention. As we move steadily toward an increasingly technological economy, emphasis is being placed on the necessity for engineers to be competent in more than mere technology.

At the annual meeting of the American Society for Engineering Education, a report was made on an extensive study of the humanistic-social training now existing in our engineering curriculum. This study again emphasized the necessity for providing at least 20 per cent of the engineering curricula in non-technical subjects. NSPE is pleased to note the results of this study, for it substantiates a policy adopted by the Society a number of years ago. Of course, most of our accredited engineering curricula now provide for this broad training of engineers. Despite this, there is a rather general feeling that engineers as a group have not acquired the skill in public speaking which is inherent in other professions. This is only one evidence of a very pressing problem in the engineering profession again showing up in repeated surveys; namely, the necessity for improving communications, both within the profession, between engineers as a group, and those who are interested in obtaining the information they are able to give.

The May issue of the *Gavel*, the publication of Delta Sigma Rho, the national honorary forensic society, contains a listing of some twenty national leaders singled out by this organization for golden jubilee citations. It is interesting to note that eight of those cited were educators, six were lawyers, two were journalists, two were theologians, and two were members of the U. S. Congress. It is interesting that not one, however, was either an engineer or scientist. This is, of course, not particularly significant as it is usual for those with a bent for public speaking to emerge in the careers chosen by those who received these citations. If any parallel might be drawn, however, it is to an item on which NSPE believes strongly—that engineers must particularly concentrate on supplementing their scientific training with the arts necessary to transmit their knowledge and experience to those who can profit most from their specialized knowledge.

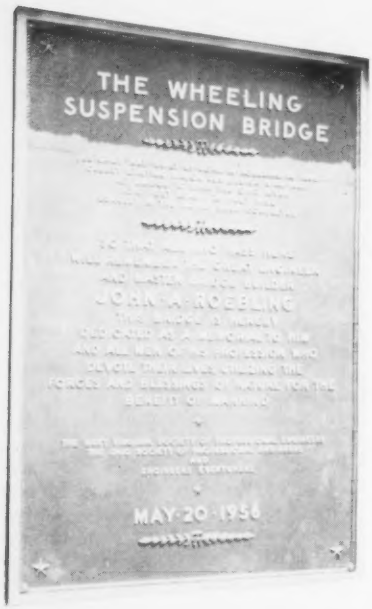
There are, of course, notable exceptions to the general observation of the need for more extensive training of engineers in the art of speaking. Almost without exception, those engineers who emerge as the leaders of our engineering societies are for the most part extremely capable of expressing themselves from the public platform. It may be debated the degree to which this ability to speak has played a part in their rise to eminence, but it seems logical that the ability to express one's self is of considerable value in bringing an individual to the fore. This is further borne out by those who have an opportunity each year to attend the annual convention of Tau Beta Pi, our national honorary engineering society. The more than one hundred top engineering students from throughout the country who attend this meeting are almost without exception good public speakers. In addition, it is interesting to observe their ability to conduct a meeting and their knowledge of parliamentary procedure and other techniques so essential to civic leadership.

As was pointed out by several speakers at the NSPE annual meeting, professional engineers are more and more expected to exert leadership in community and civic affairs. NSPE believes this is a responsibility which cannot be shirked by members of the engineering profession. To qualify for this leadership not only requires a well-rounded academic background but continued interest in human relations, civic affairs, governmental activities and the further development of the talents for and techniques of communication.—***End.***

With Our Members . . .

Wheeling Suspension Bridge Dedicated By West Virginia, Ohio State Societies

The Wheeling (West Va.) Suspension Bridge—designed and built by John A. Roebling in 1856—was dedicated as a national memorial to him and all engineers at a 100th anniversary celebration in May, sponsored by the State Societies of West Virginia and Ohio.



The bridge, which is the oldest existing major suspension span and first bridge to span the Ohio River, has been in the process of a complete overhaul since the ceremony.

Principal speaker at the dedication was Dr. D. B. Steinman, noted authority on suspension bridges.

Greetings to the group of more than 300 who attended were given by Royal S. Bundy, president of the West Virginia SPE, and Alfred Samborn, president of the Ohio SPE.

Mr. Bundy, Mr. Samborn and Ferdinand Roebling, III, unveiled a bronze commemorative plaque at the bridge which states ". . . So that all who pass here will remember the great engineer and master bridge builder, John A. Roebling, this bridge is hereby dedicated as a memorial to him and all men of his profession who devote their lives, utilizing the forces and blessings of nature, for the benefit of mankind . . ."

Others participating in the anniversary program included Jack Adams, Mayor of Wheeling; W. H. Ansel, W. Va. state treasurer; W. C. Laird, W. Va. U. S. Senator; Wayne L. Hays, Ohio Representative, and Samuel O. Linzell, Ohio Director of Highways.

Ladies' Night Enjoyed By Wisconsin Chapter

The Fox River Valley Chapter of the Wisconsin SPE recently held a Spring Ladies' Night meeting and dinner in Neenah, beginning with sightseeing tours by launch.

Lady Engineer Speaks To Pittsburgh Chapter

Featured speaker at a recent dinner meeting of the Pittsburgh Chapter of the Pennsylvania SPE was Mrs. Dot Merrill, a mechanical engineer from Chicago who heads her own firm. She spoke before an enthusiastic audience of members, their wives and guests from the Society of Women Engineers.

One of about 4,000 qualified women engineers in this country, Mrs. Merrill—a strong advocate of more female engineers—said that engineering schools report the majority of women students are above the class average scholastically.

At Pittsburgh Chapter meeting, l. to r., Mrs. Dot Merrill, L. W. Cook, PSPE president and Emma Barth, chairman of the Society Women Engineers.

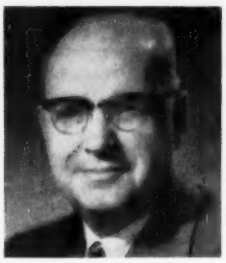
"And there is no marginal talent among women engineers," she said. "They have to be good to get there, whereas a percentage of men are engineers because father insisted when their aptitude might have been applied better elsewhere."

IOWA BECOMES MEMBER—Outgoing NSPE President Allison C. Neff, right, is shown recently presenting Rollie Stover, Marshalltown, past president of the Iowa SPE, with the official charter granting the Iowa SPE membership into the National Society. Inscribed are the words "Be it known that the Iowa Society of Professional Engineers is a member State Society, to whose members pertain the recognition, distinctions, privileges and obligations of the National Society of Professional Engineers." Waldo Wegner, Cedar Rapids, is the new Iowa president.

Sub-Professional Staff Needed, New York SPE Told At Annual Meeting

The development of a sub-professional staff to handle routine engineering chores was advocated by New York Deputy Mayor John J. Theobald in a speech at the New York State SPE's annual meeting and engineering industries exposition held in May. Mr. Theobald's plan would free professional engineers to deal with major urban planning problems.

Today the engineer must be able to decide "whether or not to build and where—more than how to build," he said. Mr. Theobald pointed out at the opening luncheon that the profes-



Lewis J. Sforzini

sional engineer must become more of a social scientist, and to give him time to fill this new function he should have the assistance of at least six sub-professional people trained to handle routine engineering work.

The Society presented its distinguished service award to General Omar N. Bradley (U. S. Army ret.), former chairman of the Joint Chiefs of Staffs and now chairman of the board of Bulova Research and Development Laboratories, Inc. Edwin Shelley, executive vice president of the Laboratories accepted the award for General Bradley who was unable to be present.

Violations of the state engineering code cause the board of directors of the Society to appoint a committee to study all malpractices. The directors said the study was needed to insure the enforcement of sound engineering specifications.

Herbert F. Roemmele, president of the Society, presided at the meeting. Outgoing NSPE President Allison C. Neff addressed the closing session.

The newly elected officers and directors of the Society were also installed. They include: Lewis J. Sforzini, president; Franklin J. Johnson, first vice president; Leigh E. St. John, second vice president; Richard B. Richardson, financial secretary, and Patrick M. Corry, treasurer.

Paul Harlamert, NSPE national director of Ohio, whose state won the "Big-Four Membership Contest," gets a free wheelbarrow trip around the boardwalk in Atlantic City—with the losing state national directors supplying the manpower. Doing the pushing are L. Foster Tierney, Penn., J. Neils Thompson, Texas, and F. J. Johnson, New York. Looking on at Mr. Tierney's left in the background is George E. Zelhart, national director of California.

Membership Contest Winners Announced

Group winners in the NSPE Membership Contest—which began June, 1955, and ended April, 1956—have been announced. Beautiful membership award plaques were presented at the annual meeting in Atlantic City to the directors of the following states:

North Dakota—Group I
Florida—Group II
Oklahoma—Group III
Michigan—Group IV
Ohio—Group V

In addition to the above winners, several states turned in fine promotional jobs. Notably among these were Idaho in Group I, North Carolina, Group II, Kansas, Group III and Washington, Group IV. A tremendous membership drive by Ohio in Group V put them ahead in the "Big-Four Contest"—composed of New York, Ohio, Pennsylvania and Texas (See photo above).

"Professionalism Versus Unionism" Is Discussed

"Professionalism of Engineers Versus Unionism" was the topic under discussion at the May meeting of the St. Louis Chapter of the Missouri SPE.

W. B. McMillan, president of the Hussman Refrigerator Company, was guest speaker for the evening and gave an informative talk on the pros and cons of the issue.

. . . more news on page 37

Allison C. Neff, center, outgoing NSPE president, is shown with a group of Connecticut Society of Professional Engineers' officers during a preliminary meeting held at the Hotel Taft in New Haven in May. L. to r. are Phil Genovese, past president and national director, T. Braaten, Connecticut president elect, Mr. Neff, William H. Austin, president of the New Haven Chapter, and L. Browning, president elect of the Eastern Connecticut Chapter.

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New Officers Named By Spokane Chapter

Newly elected officers of the Spokane Chapter of the Washington SPE are as follows:

Wilho E. Williams, president; Herb J. Webb, vice president; Gordon J. Fenton, secretary-treasurer; Edwin M. Atwood, one year state trustee, and William N. Pauley, two year state trustee.

Civil Defense Speech Heard By Nebraskans

Guest speaker at the May meeting of the Eastern Chapter of the Nebraska SPE was Major Peter P. Genero who talked on the "Air Defense of the Continental U. S."

Major Genero, stationed with the Army Anti-Aircraft Command, Ent Air Force Base, Colorado Springs, Colo., spoke on many aspects of civil defense.

Indiana SPE Presents Junior Memberships

One of the highlights of the annual meeting of the Indiana SPE was the presentation of Junior Membership Awards to five June, 1955, engineering graduates from accredited Indiana engineering colleges on the basis of their general records while attending college.

The awards—which give the recipients junior memberships for a year in both the Indiana SPE and NSPE—were presented by Herman A. Moench, dean of engineering at Rose Polytechnic Institute to: Thomas A. Sutherland (Notre Dame); Harvey DeFrees, Jr. (Purdue); Richard T. Freije (Purdue); Richard J. Stettler (Purdue), and John W. Gregory (Rose Polytechnic Institute).

Hall, Others Honored By Michigan Society

National NSPE Director Otto H. Hall, Lansing, Michigan, was one of six prominent engineers voted honorary memberships in the Michigan Engineering Society at the seventy-sixth annual meeting in Grand Rapids, May 12.

The membership certificate, p resented by Joe Jewell, past president of the Michigan Engineering Society, stated:

"In recognition of his attainments and accomplishments as well as his exemplary standing among the members of the engineering profession."

Others honored were: George W. Francis, J. Harold Foote (both NSPE members), Earl R. Weeber, Harry T. McGaughan and Otto S. Hess.

The newly elected president of the Society is M. Eugene Malone, Kalamazoo. Other officers are D. Bradford Apted, Grand Rapids, vice president; George M. Foster, Lansing, treasurer; Joseph E. Wilbur, Kalamazoo, director at large, and Samuel D. Porter, Ann Arbor, past president.

Student Wins $300 Engineering Award

A $300 engineering scholarship has been awarded to Everett Hines, Teaneck, N. J., by the Bergen County Chapter of the New Jersey SPE.

The award was presented by Frank Jetter, president of the Chapter, and Frank Hohnholt, chairman of the scholarship committee. Hines competed with entries of twenty-three county schools. The award was made on the basis of scholastic achievement, an interview by the committee at Fairleigh Dickinson College and a composition entitled "Why I Want to Become an Engineer."

. . . more news on page 39

Alphabetized by States . . .
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Pres. Rhinehart Attends Several State Meetings

Robert J. Rhinehart, incoming NSPE president, has been getting into form for his new office—which he assumes officially July 1—by attending several state meetings.

During the month of June, Mr. Rhinehart spoke to the state societies of California, Nevada, Arizona and South Carolina.

NSPE Vice President Warner Howe also attended the South Carolina session.

Nuclear Plant Plans Told to Mass. Society

During an atomic energy symposium at the annual meeting of the Massachusetts SPE, it was disclosed that the Raytheon Manufacturing Company, of Waltham, Mass., is planning to build a $4,000,000 nuclear plant.

William A. Robba, nuclear group chief, made the announcement.

Crawford M. Adams, Pittsfield, is the new president of the State Society. Other officers include John P. Manning, Hingham, vice president; Paul F. Foskett, Wayland, secretary; Paul F. Gorman, Brockton; and Joseph H. De Foe, Wakefield, and Raymond L. Doyle, Springfield, national directors.

Officers Installed June 14 In Phoenix

Newly elected officers of the Central Chapter of the Arizona SPE were installed June 14 in Phoenix.

W. T. Hamlyn succeeded John Carollo as president. Other officers are Americo Lazzari, first vice president; Lucille Kaufman, second vice president; Charles Haley, secretary-treasurer, and Harold Hudson, state director.

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Seattle Chapter, Washington SPE, holds ladies' night for regular April meeting. Standing, l. to r.: Dean E. W. Kimbark, Seattle University; John R. Wallace, Jr., program chairman; Robert H. Lochow, president; Wallace W. Bergerson, secretary-treasurer. Seated, l. to r.: Mrs. Kimbark; Mrs. Wallace; Mrs. Rachel Thomas, featured speaker; Mrs. Lochow and Mrs. Bergerson.

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North Dakota Society Issues Publication

A new publication, *North Dakota Professional Engineer*, made its debut in June.

Under the supervision of the NDSPE, the bulletin-styled publication was created primarily "to sell the Society and to promote its general welfare by keeping everyone in touch with its activities and thereby stimulating interest in the Society," according to a front page introductory story by the editors.

Commenting on the issue in "The President's Letter," a feature article, A. L. Bavone, NDSPE president, wrote, "the lack of a news organ whereby the membership could be kept informed on Society activities has been one of our greatest weaknesses."

Alfred H. Samborn New Ohio SPE Prexy

Alfred H. Samborn, Toledo, is the new 1956-57 president of the Ohio SPE, it was recently announced. The vice presidents are J. Warren Kinney, Jr., Cincinnati; Elmer S. Barrett, Chillicothe, and H. Bruce Baty, Middletown. The secretary is John E. Gilkey, Lorain, and Earl L. Hineline, Akron, is treasurer.

St. Lawrence Seaway Subject of Akron Talk

"Engineering and Construction Aspects of the St. Lawrence Seaway" was the subject of a talk June 5 by Colonel Lauren W. Olmstead at the annual meeting of the Akron District Society of Professional Engineers (affiliated with the Ohio Society and NSPE).

Scholarship Awarded To High School Senior

The Passaic County Engineering Society of the New Jersey SPE recently awarded a high school senior with a $300 scholarship for his "scholastic record, character, soundness of education, planning, loyalty and citizenship development."

Werner Aehlich, who plans to study mechanical engineering at Stevens Institute of Technology, was the recipient of the award.

Members of the society's award committee were Samuel Masker, Jr., Augustin J. Zimmerman, Ray W. Smith and Russell P. Westerhoff, president of the Society, who made the presentation.

Neff Tells Michigan Society About NSPE

"Your NSPE—Its Activities and What It Is Doing For Its Members" was the subject of an address by Allison C. Neff, outgoing president of the National Society, at the ninth annual meeting of the Michigan SPE in June.

Mr. Neff also spoke at the opening night banquet on "The Engineer—A Good Citizen."

The three-day session concluded with a speech by Lt. General Samuel D. Sturgis, Jr., Chief of Engineers, U. S. Army.

Illinois Chapter Host To Future Engineers

Possible future engineers were guests of the Central Illinois Chapter of the Illinois SPE at the May meeting and dinner. The young high school students were each sponsored by a chapter member.

Dr. Jay Logan, pastor of the First Presbyterian Church in Decatur, gave a short opening address. He is a graduate engineer who was later called to the ministry. Two short films of general interest were shown. A panel which answered questions put forth by the student guests concerning the engineering profession concluded the evening.

Meeting

(*Continued from page 32*)

DECERTIFICATION PETITIONS BY ENGINEERING EMPLOYEES OF WESTERN ELECTRIC COMPANY

The Subcommittee has followed closely the activities of certain engineers employed by the Western Electric Company in an endeavor to secure a decertification election to determine whether they should continue to be represented by the Council of Western Electric Technical Employee—National (ESA). Such petitions have been filed by engineers employed by the company in North Carolina, Maryland and Pennsylvania. The petitions were rejected by the NLRB because the union is certified nationally and under long-established policy a decertification petition must be for the entire bargaining unit. Whether enough of the engineers represented by the union nationally will wish to file a national decertification petition to justify an election remains to be seen. Developments in this matter will be watched carefully and reported as they occur.

"A PROFESSIONAL LOOK AT THE ENGINEER-IN-INDUSTRY"

The above publication, proceedings of the Engineer-in-Industry Conference at Philadelphia, June 1955, and reprints of the Dow article which appeared in the AMERICAN ENGINEER continue to be in demand. The membership of the Subcommittee points to this publication program with the assurance, now, that this has shown practical solutions to many problems in industry. Professional engineers and managements alike wish for clear definitions of their problems and for a share in NSPE suggestions for solution.

Board Action: Recommendation Adopted.

ENGINEERING PRACTICES SUBCOMMITTEE

During the past year your Committee has been primarily concerned with the problems of the consulting engineers in private practice. As a matter of information, a group of consulting engineers have been actively working on the formation of a new National Association of Consulting Engineers. The Executive Committee of NSPE, being opposed to the formation of splinter groups, instructed this Committee to make a complete study of this movement and to report to the NSPE Board what action, if any, should be taken.

After a careful study of the available information, the Committee recommended to the Board at the fall meeting in Memphis that NSPE authorize the organization of functional sections within the framework of NSPE. The Board approved the Committee report, authorizing functional sections and instructed the Committee to report to the Board at the Washington meeting on the recommended scope of activities, organization, etc. The Committee submitted an interim report on this matter. The executive director, based upon the interim report, prepared a questionnaire which was sent to all members of the Board. The answers received were tabulated and studied by the Executive Committee at the State Presidents meeting in Dayton, which was attended by the chairman of the Committee. The matter was also thoroughly discussed by the state presidents.

The Executive Committee, after making certain modifications to the interim report, approved the revised draft and instructed the Constitution and Bylaws Committee to make the necessary changes in the bylaws so that they could be acted upon at the annual meeting in Atlantic City. This Committee has reviewed the proposed changes in the bylaws and recommends their adoption.

The Committee has also arranged a conference program for consulting engineers in private practice for May 25, 1956. At this time, provided the NSPE Board has approved the bylaws changes, we hope to organize the first functional section on the National level. We believe that this section will help NSPE to furnish a very necessary service to the group, and that other groups with similar interests will follow the lead of the consulting engineer in private practice in organizing functional sections.

Board Action: Report Accepted.

ETHICAL PRACTICES

UNIFORM TELEPHONE LISTINGS

During the year, contact was maintained with A. T. & T. but with no change in their contention that acceptance of NSPE listing policy would be unworkable from the telephone company standpoint and that they could not accept policing or checking responsibilities. The Committee contends that policing of listings will be carried on by state societies and chapters and that the A. T. & T. reasons for noncompliance are not valid.

The Committee urges the chapters and state societies to continue on an aggressive program of implementing the uniform classified telephone directory listing as adopted by the Society at the Albuquerque, New Mexico, meeting. On the national level the Ethical Practices Committee should continue to exhibit a cooperative attitude toward the American Telephone and Telegraph Company and should serve as a clearing house for the dissemination of information to the chapters and state societies, particularly regarding methods used in those locations where the successful attainment of the desired listing procedure has been effective.

ADVERTISING AND FREE ENGINEERING SERVICES

Under date of January 27, 1956, a questionnaire was mailed to all chapter presidents requesting information on the type and extent of advertising of engineering services and the offering of free engineering services. Thirty-nine completed questionnaires were returned and while seeming to be a poor response, they did represent chapters in twenty-five states. Conclusions drawn from the replies indicate that:

1. Unethical advertising is not prevalent but is practiced by a very small minority and scattered over the entire country.
2. Advertising of "free" engineering service by manufacturers of equipment and material is not prevalent. However, the offer to perform such is made by personal visits and letters, and this is prevalent.
3. In practically all instances engineers know that this "free" engineering is added to the cost of the product and, therefore, paid for by the client; also, eliminating competition.
4. Designs of equipment and material manufacturers are used moderately by consulting engineers. It is to be assumed that anyone doing this would be prone to admit it. It is an insidious practice.

It is the Committee's opinion that the prevalence of unethical practices through advertising of engineering services and the offering of free engineering services is not truly represented by the questionnaire, directed only to NSPE members and that time did not permit a full survey of the problem.

It is their further opinion that the practice, even though perhaps not extensive, is of such an unethical type as to bring disrepute to the profession and a lowering of professional stature in the public eye. It has the nature of selling a product over the counter.

The Committee believes that in the determination of ethical or unethical practice, under the heading of advertising we must differentiate between calling the public's attention to proffered service as such and simply using one's name as a signature to a document, on a plaque or other unlaudatory announcement of responsibility for the work. An engineer's or architect's name on a construction sign, at the end of a report or technical article, or on a plaque or tablet attached to a structure seems to be accepted by the professions as ethical.

The recommended guide for determination of ethical advertising is contained in Rules of Professional Conduct number 2-a through 2-g and the guide on free engineering service in rule number 1-h, 15-a and 29-b. Violations of these rules by NSPE members should be treated as other violations of ethical practices and attempts made to eliminate these practices by nonmembers such as equipment, material and supply manufacturers or vendors.

COMPETITIVE BIDDING

The major technical and professional engineering societies of the United States have long recognized that the procurement of engineering or architectural services by competitive bidding on a monetary basis is not in the best interest of the public welfare, therefore, such societies have opposed this procedure through statements of policy and provisions in their codes of ethics. To condone such practice places a premium on incompetency.

Although recognizing the evils of competitive bidding, few societies have taken positive action to discipline their members engaging in such practice or have instituted a comprehensive program for the education of the public as to the evils and pitfalls attendant to such procedure.

During the meeting of the Ethical Practices Committee on April 7, 1956, the problem of competitive bidding was discussed at great length. The Committee was unanimous in its approval of the NSPE statement of policy concerning competitive bidding for engineering services but was likewise unanimous in its opinion that NSPE and the member state societies should take a more positive approach with their members and the public by making a more concerted effort to educate the public, incorporate definite provisions for disciplinary action in the state society or national bylaws where necessary and institute a procedure for disciplinary action against its members for violations of the Canons of Ethics as especially defined in Section 8-b and c, 21-a, 26-a and b, and 27-a.

Accordingly, it is recommended that NSPE institute a program designed to inform government, state, county and municipal officials charged with the responsibility of procurement of professional engineering services, as well as other employers of engineering services, as to the most desirable and proper procedure to be followed. Further, that this activity be carried out as a part of the Ethical Practices Committee's educational program as outlined in another section of this report.

(*Continued on page 43*)

NEW Processes . . .

Low Turbulence Wind Tunnel Built By Todd For Northrop

Construction of a large low-speed wind tunnel for Northrop Aircraft, Inc., Hawthorne, California, was recently completed by the Los Angeles Industrial Division of Todd Shipyards Corporation.

The tunnel is the continuous type, with an over-all space requirement of 197′ long by 65′ wide. The test section is 7′ high x 10′ wide x 20′ long. Air emerging from the test section passes through a series of diffusers, corners and transition sections until it reaches the damping screen section 33′ in diameter, after which a special contraction fairing reduces the tunnel area back to the test section.

The unique design of the tunnel, which incorporates such features as

Artist's conception of the completed wind tunnel at Northrop Aircraft.

rectangular-to-round transitions and cone contractions, proved to be particularly adaptable to the fabrication methods used in ship construction. The entire tunnel was laid out full scale on Todd's massive Mold Loft floor and all parts were developed to permit a fabrication which is close to being aerodynamically ideal.

The tunnel, a subsonic, atmospheric pressure tunnel, was designed to operate at a wind velocity of 285 miles per hour (0.37 Mach number) and 200 lbs. per square foot dynamic pressure. It is powered by a 2,000 hp electric motor driving a six-bladed, fixed-pitch fan with a synchronous speed of 720 rpm.

A large diffusion and stilling section was fitted with seven antiturbulence screens. The contraction nozzle was designed to produce a monotonic velocity distribution: the 12-to-1 contraction ratio is expected to produce a test section flow with minimum turbulence.

Aluminum Minimizes Deadload On Dome-Shaped Storage Buildings

Corrugated aluminum roofing sheet proved to be an attractive and economical covering for two new giant dome-shaped gypsum storage buildings of Kaiser Gypsum Company, Inc.

The unusual buildings — one at Long Beach and one at Antioch, California—are identical. Each rises 70 feet above yard level, spans 175 feet at the spring line, has 16 rectilinear segments and has storage capacity of 35,000 tons of gypsum rock.

Designed by Kaiser Engineers, the dome-shaped structures offered the advantages of maximum use of space, conforming with the general shape of piled loose material, and a relatively light structural system of only about half the weight of a conventionally designed building. In addition, the dome shape provided greater stability pound for pound, and greater wind and earthquake resistance.

Loading considerations were principally the deadload and windload. The lightweight aluminum covering served to hold the deadload to a minimum without sacrificing strength. The circular shape substantially reduced windloads and contributed to a considerable saving in steel.

The steel structural system consists of radial beams, circular rings and diagonal bracing. The main members consist of 12-inch wide flange 27-pound in the top portion. The ring members similarly vary in size. All bracing and ring connections were welded. The angle bracing distributes uneven load down to the foundations.

Erection was done in tiers, each tier consisting of 16 panels. Alternate panels were shop assembled, composed of two rib and two ring members, including bracing. Alternate panels of the first tier were supported on temporary shores and the remaining ring members connected to these panels. The succeeding tiers were erected from the first ring by holding the panels by temporary cantilevers attached to the two ring beams of the first tier.

The corrugated aluminum industrial roofing sheets were fastened to the structural members by endwelded composite aluminum Ribweld studs. This simple and efficient method saves an estimated 50 per cent of labor costs and eliminates the need for an interior scaffolding. Altogether, 12,000 aluminum studs were welded to the steel framework by portable Nelson stud-welding guns. Studs were located by means of templates.

The corrugated aluminum sheets were bent, on a power brake using a special die, transversely to conform with the changes of contour of the dome at the rings. The sheets were impaled over the studs by means of rubber hammers, and the ends of the studs were then offset.

Raw gypsum rock is received through the top of the storage building by conveyor from nearby dock facilities.

This interior view during construction of the gypsum storage building of Kaiser Gypsum Company, Inc., at Antioch, California, shows the steel structure partially covered with corrugated aluminum roofing sheet.

Meeting

(*Continued from page 41*)

EDUCATIONAL PROGRAM

It is fully recognized that most violations of the engineering ethics come about through ignorance as to what is right and proper on the part of the engineer or those with whom he is associated or serves. The educational program of the Ethical Practice Committee is dedicated to replacing ignorance with knowledge and apathy with vigorous, positive action. This program outlines the trouble spots in ethical practice in engineers' relations with the following ten areas:

Public Official
Equipment Manufacturers
Industrial Management
Engineering Teachers and Students
Telephone Company Listings
Organized Labor
The Engineer
The Architect
The Surveyor
The Contractor

During the past three months over 150 letters have been written to key individuals in every state of the union briefing them on the nature and purpose of the educational program and soliciting their suggestions. Typical topics on ethics in the above ten areas were included in these letters to stimulate their thinking. Names of about 50 persons have been suggested as potential authors of articles on ethics in these various areas.

It is the conception of the Committee that for such a program of education to be successful it must be wide in scope, well planned on a long-range basis, diligently and faithfully executed and continuous in operation. To that end the Committee suggests the following procedure:

1. The Ethical Practices Committee will be responsible for gathering of material and editing of articles or pamphlets.
2. National headquarters office will be responsible for the printing and dissemination.
3. Pamphlets, letters, or reprints directed at public officials and others will be distributed to the ethical practices committee of each chapter and state organization with instructions for redistribution.
4. The ethical practices committee of each chapter or state organization will be charged with the responsibility of mailing the information to, or otherwise placing in the hands of, each and every public official concerned with the procurement of engineering services in its jurisdictional area and to other parties or organizations concerned with the subject matter of the articles.
5. The Ethical Practices Committee of NSPE with the aid of the headquarters office will contact each local president and ethical practices committee a reasonable period of time after such local committees have received the material inquiring as to its disposition. Further "follow-up" inquiries will be made as required.
6. Following each election each local ethical practices committee will distribute information regarding ethical practices of engineers to all newly elected public officials.
7. The national headquarters of NSPE will contact the appropriate officers of the American Municipal Association and the National Organization of City Managers, exerting every effort to obtain the cooperation of those organizations in disseminating information to their membership.
8. State ethical practices committees will make similar contacts with the counterpart organizations of their states.

It is recommended that these articles be edited and arrangements for publication be made by one or more members of the ethical practices committee. It is further recommended that reprints of these articles be ordered by the NSPE headquarters and distributed to the state and chapter offices and the state and chapter Ethical Practices Committees and be available for purchase and distribution as required. Reprinting of these articles in state and local publications should be vigorously pursued by the state and local ethical practices committees.

It is also recommended that the AMERICAN ENGINEER magazine establish a column on ethical practices which will carry important news in this area including references to all worthwhile articles and abstracts of the better ones. It should also carry terse announcements of proven violations or official reprimands for unethical practice by engineers whether they are NSPE members or not.

LOAN OF ENGINEERS

Advertisements of a display type have been carried in the *Wall Street Journal* offering to rent or loan engineers through an attractive arrangement with these engineers working in your office or the office of the firm advertising. A question of ethics is here raised and the Ohio Society not only referred the matter to this Committee but have been actively investigating the practice from both a violation of registration law standpoint and violation of the Canons of Ethics.

The Ethical Practices Committee believes that being a party to operating a service for the loan or rent of engineers for a fee or consideration of any kind is an unethical practice and submit Section 25-f of the Rules of Professional Conduct for approval by the Board.

RECOMMENDED PROCEDURE FOR HANDLING ALLEGED VIOLATIONS OF ETHICS AND PRACTICE

As mentioned at the beginning of this report, each committee member, stressed the need for rules of professional conduct and for an established procedure for obtaining compliance with ethical practices as contained in the Canons and any adopted rules.

The Committee submits the following ten procedures for adoption and recommended use at the national, state and chapter levels, with attention called to the recommendation that certain responsibilities be placed on the NSPE Board of Ethical Review:

(1) Any professional engineer learning of an alleged violation of ethical practice of a fellow engineer will be morally responsible to promptly report such misconduct to the ethical practices committee of his chapter, after taking reasonable steps to check the facts and circumstances surrounding the violations.

(2) The chapter ethical practices committee in turn shall secure all facts and evidence concerning the alleged violation and make a confidential report including these facts to the state ethical practices committee with their recommendation for action.

(3) The state ethical practices committee shall hold such further investigations and hearings as is deemed necessary for a full understanding of the case and where violations of ethics have been found to exist they shall recommend specific action to the state board of directors of the society.

(4) The state board shall consider the case and the recommendations of the ethical practices committee and if they concur shall take the appropriate action. If they do not concur, they shall refer the case back to the state ethical practices committee for further investigation and review in accordance with the suggestions of the state board. In no case will a recommendation for suspension or expulsion from the society be made without the accused individual being given a chance of a hearing by the state ethical practices committee.

(5) The reprimand of the state board of the society may be in the nature of a warning or a suspension or an expulsion from the society. It may in certain cases of gross malpractice or of violation of the state registration or related laws include recommendation to the appropriate official state agency that the accused individual have his professional engineering license revoked.

(6) In cases where conditions warrant, the state board of the society may recommend additional appropriate disciplinary action by the Executive Committee of the National Society. The Executive Committee action might include a letter of censure or when requested by the state board the Executive Committee may recommend through appropriate channels censure, suspension or expulsion by any or all of the other professional or technical societies of which the violator is a member. Such inter-society action would not normally be taken upon the first violation.

(7) The NSPE Board of Ethical Review shall act as a court of appeals for any action of the state or national committees or boards when so requested in writing by the person allegedly violating the Code of Ethics. The NSPE Board of Ethical Review shall also act as a final authority in interpreting matters on ethics.

(8) Interpretation of the Canons of Ethics shall be clarified in detail through publication of the Rules of Professional Conduct which shall be periodically expanded and improved by the NSPE Ethical Practices Committee, subject to the approval of the NSPE Board of Directors.

(9) This shall become the official handbook on ethical practice and may be enlarged to include a bibliography and some abstracts of pertinent articles and pertinent case abstract and other reference material. This handbook may also include minimum fee schedules on a national and state basis and such other information directly or indirectly related to ethical practices.

(10) The national and state bylaws shall, if necessary, be changed to provide for a censure, suspension or expulsion of individuals found guilty of violating the Canons of Ethics as further interpreted by the Rules of Professional Conduct.

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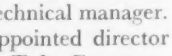
STRICTLY BUSINESS

Personalities . . . **James A. McDonnell** of Vestal, N. Y., has been appointed manager of department in development engineering for **International Business Machines Corporation. . . .**

Mr. McDonnell

Edward W. Kilpatrick, retired New Jersey engineer, has been named consulting engineer to the **Boswell Engineering Company,** Ridgefield Park, N. J. . . . The appointment of **Charles B. Bendix** to the post of executive vice president for **Sundstrand Engineering Company,** Rockford, Illinois, has been announced by **R. H. Gustafson,** president. . . . **Robert E. Spoerl** has been named chief sales engineer for the conveyor and elevator belting department of **United States Rubber Company . . . Consolidated Diesel Electric Corporation,** Stamford, Conn., has appointed **Julian A. Licht** as foreign technical manager. . . . **Howard J. Bowman** has been appointed director of research and development for **Trent Tube Company,** East Troy, Wisconsin. . . . The appointment of **Robert C. Briggs** as district engineer for New England with headquarters in Boston has been announced by **The Asphalt Institute.**

William A. Marshall has recently joined the staff of **The Trane Company's** Products Engineering Department as a development engineer. . . . **Harry P. Schrank** has been elected executive vice president of **Seiberling Rubber Company. . . . The National Board of Fire Underwriters** has announced the promotion of **Carl A. Weers** to the position of assistant chief engineer in its San Francisco office. . . . **Donald Masson** has been appointed sales manager of **The Jay Corporation,** Columbus, Ohio. . . . **Dr. Irving Roberts,** who has been associated with **Reynolds Metals Company,** Louisville, Ky., has been appointed director of planning for the company, according to an announcement by **R. S. Reynolds, Jr.,** president. . . . **Charles W. Burkland** has been promoted to the newly-created position of associate research engineer in **The Maytag Company's** Research & Development Division. . . . **Richard S. Connolly** has been named assistant sales manager with the Heavy Steel Forms Department of **Blaw-Knox Company,** Pittsburgh.



Mr. Masson

International Resistance Company, Philadelphia, announces the appointment of **Sava Sherr** to chief mechanical engineer. . . . **Dr. Clarence H. Beck** has joined **Lockheed's Missile Systems Division** in Van Nuys, California, as a design specialist in the research laboratory's flight test electronics department. . . . **Walter G. Engler** and **Alfred H. Hallenbeck** have been appointed vice presidents of the **Gifford-Wood Company,** Hudson, N. Y. . . . **Hobart H. Hartong** has been named chief engineer of the Joliet, Illinois, plant of **Phillips Control Corporation,** a subsidiary of the **Thor Corporation.** . . . The election of **K. C. Cox** as a member of the board of directors of **Dravo of Canada Limited** has been announced. . . . **Phillip L. Williams** has been appointed manager of Reinforced Plastics Engineering Development for **Owens-Corning Fiberglass Corporation** and **John S. McBride** has been named technical manager, plastics reinforcement laboratory, it has been announced by **William M. Keller,** vice president. . . . **Barry Topcik** has been appointed chief chemist of the **Eberhard Faber Pencil Company's** rubber division, at its Newark, N. J., plant.

Mr. Engler

Ownership Changes and Mergers . . . **The Lincoln Engineering Company** of St. Louis, designer and manufacturer of lubricating equipment, has merged with **The McNeil Machine & Engineering Company,** Akron, Ohio, by vote of the shareholders of both organizations. The new name will be **Lincoln Engineering Company, Division of The McNeil Machine & Engineering Company . . . James P. Bell** and **J. B.Woodward** have purchased the **Fargo Oil and Grease Company** of Fort Worth, Texas. . . . The sale of the **Union Asbestos & Rubber Company's Heating Division** to **Batavia Kritzer, Inc.,** Batavia, Illinois, has been completed. . . . **American Cyanamid Company** has announced the acquisition of the business and assets of **The Formica Company,** producers of plastic laminates. . . . **The Kearney & Trecker Corporation,** Milwaukee, Wisconsin, has sold the **Walker-Turner Division** to the **Rockwell Manufacturing Company.**

Operational Expansion . . . **Gulf Research and Development Company** has revealed that it has undertaken an expanded production research program —being conducted by 150 scientists, engineers and technicians—in an effort to improve the recovery of petroleum from oil fields. . . . A $113,000,000 expansion of **Kaiser Steel Corporation's** Fontana, California, steel mill has begun, according to **Jack L. Ashby,** vice president and general manager. . . . The Le Roi Division of **Westinghouse Air Brake Company,** Milwaukee, Wisconsin, has announced a $5.5 million engineering and research expansion program. Engineering manager **H. J. Buttner** pointed out that engineering department personnel would be doubled during 1956. . . . **The Sunstein Engineering Company,** Bala-Cynwyd, Pennsylvania, has expanded its operations to form the **General Atronic Corporation,** which was organized for carrying out research, consulting and development in the electronic engineering field.

New Firms . . . **O'Mara and Flodin, Inc., Engineers,** recently set up headquarters in Los Angeles, California. The main activity of the company is in the dust and fume control and drying and air separation fields.

Meeting

(*Continued from page 43*)

BROCHURE ON ETHICS FOR ENGINEERS

The files of former ethical practices committees and urging by some state ethical practices committee representatives convinced our Committee of the need for a published brochure for general circulation and especially for presentation to each new member of NSPE and perhaps young engineers at the time of receiving their university degree.

After nearly a year of study of available material written and/or published by Morris Llewellyn Cooke, Clement J. Freund, John L. Harrington, N. W. Dougherty, Mason G. Lockwood, D. B. Steinman, Bertrand Russell, L. L. Fuller, R. A. Hill, D. C. Jackson, F. H. McDonald, Kenneth A. Meade, John B. Wilbur, *The Annals*, January, 1955; *Geological News Letter*, October, 1955; Engineers Council for Professional Development; American Society of Chemical Engineers; American Society of Civil Engineers; American Institute of Electrical Engineers; American Society for Engineering Education; American Institute of Architects; American Society of Mechanical Engineers, the Committee prepared a sample copy that can be edited and ready for publication as soon as approved and funds are made available. This brochure contains:

A Prayer for Engineers
A Treatise on Canons-Creeds-Codes-Development and Usage
The Engineers Creed as developed and approved by NSPE
Canons of Ethics for Engineers as developed by the Engineers' Council for Professional Development and approved by NSPE in October 1946
Rules of Professional Conduct.

Board Action: Report Received.

INTERPROFESSIONAL RELATIONS

Your Interprofessional Relations Committee during this administrative year exerted its major effort with the American Institute of Architects.

An excellent start was made with a well attended joint meeting July 8, 1955, in Washington between your Committee and the AIA Committee on Collaboration of Design Professions. The relations between the representatives of the two professions were exceptionally cordial resulting in final committee approval of the Standard Form of Agreement Documents, approval of an Interprofessional Code of Practice and approval of five resolutions for cooperation between the two professions on chapter, state and national levels in all areas of mutual interest. It was agreed that these items were to be submitted to the respective Boards of AIA and NSPE for approval.

Accordingly all items were submitted to the NSPE Board of Directors at the October 1955 meeting and approval was granted.

We were advised in January 1956 that the Standard Form of Agreement documents were presented to the AIA Board of Directors and received approval subject to the review and approval of their legal counsel. Subsequently we were advised that legal counsel had approved and the documents were in the hands of AIA Office Practices Committee to establish a format for the printing which would be uniform with their other documents. The approval of this Committee and actual printing is expected within the next month or two.

The Interprofessional Code of Practice for Architects and Engineers was submitted to the AIA Board but was not approved. The Board expressed its appreciation for NSPE cooperation but concluded—"that it did not believe that the Institute can or should subscribe to an Interprofessional Code of Ethics inasmuch as it has its own code carefully promulgated and strictly enforced in accordance with established procedures. Likewise, the engineering groups have their own Codes of Ethics. For these reasons an Interprofessional Code appears to be superfluous."

Your Committee takes issue with the conclusion of the AIA Board by virtue of the statement of the third paragraph of the Preamble of the proposed Interprofessional Code of Practice—"Furthermore, it is incumbent upon these professions to prevent confusion in the layman's mind in regard to matters of similar or overlapping fields of professional practices."

The individual codes of ethics of the two professions cannot accomplish this. However, there was no intent to by-pass or weaken the established ethical standards of either profession as evidenced by the following excerpt from the Committee's report to the NSPE Board October, 1955—"The Joint Committee agreed that in reproducing the Interprofessional Code that reference be noted to the Canon of Ethics for Engineers adopted by NSPE in 1946 and the Standards of Professional Practices adopted by AIA Document number 330-revised June, 1954."

The AIA Committee on Collaboration of the Design Professions expressed hope for further study and future approval of the Interprofessional Code. We recommend that our successors continue to seek joint NSPE-AIA approval of this type of Code.

The Interprofessional Relations Committee has conducted a survey of the state societies to ascertain their joint activities with architects. Of the answers received to date there are just slightly over half of the states that have or plan an Architect-Engineer Joint Committee. As there are many facets of common interest with architects, we recommend that more state societies establish joint committees to discuss matters of mutual interest before they become problems.

We have noted that joint meetings between this Committee and a parallel committee of AIA are valuable to improve the understanding and confidence between the two professions and recommend that these joint meetings be continued and if possible increased in number. We also recommend another exploration for items of mutual interest with other professions to determine whether closer liaison should be established.

Board Action: Report Accepted.

LEGISLATIVE

Following is the list of legislative items of current interest to the profession on which NSPE has recommended appropriate action, together with a status report for each item.

KEARNS "FREEDOM OF ASSOCIATION" AMENDMENT TO TAFT-HARTLEY ACT

The pending bill, supported by NSPE, would amend the labor law to make it clear that associations of professional personnel, including "employees" and engineers in supervisory positions, do not constitute "labor organizations" as defined in the Taft-Hartley Act. Congress has not taken any action on the many proposed amendments to the Taft-Hartley Act and until the entire Act is opened for revision there will not be any action on the separate proposed amendments.

SEPARATE CLASSIFICATION FOR FEDERALLY-EMPLOYED ENGINEERS

We have had several favorable developments with respect to legislative action to implement NSPE's position favoring the restoration of a professional schedule for engineers in the Federal service. Representatives Moss and Gubser of California, both members of the Civil Service Committee, have announced they will jointly introduce a bill along the lines recommended by NSPE. At the time this report was prepared the bill was being drafted and is scheduled for introduction in the next several weeks. As soon as it is introduced it will be reviewed carefully, and, if in accordance with the NSPE recommendation, full support will be indicated to the members of the Congressional Committee concerned. The state societies and chapters will probably be called upon for separate letters of support at the appropriate time. The Interdepartmental Committee on Scientific Research and Development has submitted a report to the White House on the problem of attracting and retaining engineers and scientists in the Federal service, and it is understood that the report (not yet released to the public) also supports the idea of a separate professional schedule in place of the present General Schedule applicable to engineers and scientists along with administrative and clerical employees. Also, the Assistant Chief of Engineers recently testified in favor of a separate professional schedule. We are confident that there will be widespread support for the separate schedule legislation when it is introduced, and NSPE may take justifiable pride in the fact that it was the first major engineering organization to publicly advocate such a reform in Congressional testimony, more than a year ago.

REGISTRATION REQUIREMENT FOR FEDERALLY-EMPLOYED ENGINEERS

NSPE is on record as favoring a requirement that all engineers in the Federal service appointed or promoted to Grade 13 or above be required to be registered as a professional engineer under the state engineering registration law. This policy contemplates that eventually the registration requirement be applied to all responsible engineering positions, regardless of grade, but Grade 13 was adopted by the Board as a proper starting point for the long-range objective. From a practical standpoint, it is necessary that the separate professional schedule be adopted before much progress can be made toward a registration requirement. Hence, we do not anticipate any immediate legislative action along the registration requirement line. This objective will be the second step in the program to place engineers in the Federal service on a full professional basis.

INCREASED COMPENSATION FOR HIGHER GOVERNMENT GRADES

At the February, 1956, meeting, the Board of Directors endorsed the pending legislation, "Classification Act Amendments of 1955," (S. 2628) which would increase the compensation for the higher grade positions in the Federal service. This action was implemented by an official letter of endorsement to the Chairman of the Sen-

(*Continued on page 47*)

...NEW LITERATURE...

To help the offering firms determine which literature you require, when requesting an item, be sure to list all specifications shown . . . and say you saw it in the AMERICAN ENGINEER.

LIGHTING—A new 28-page bulletin dealing exclusively with the lighting of turnpikes and expressways is now available from the General Electric Co., Schenectady 5. The publication, designated GED-3001, devotes special attention in separate sections to the lighting of toll plazas, interchanges, service areas, main traffic lanes, bridges and viaducts, tunnels and underpasses, and special purpose lighting. A number of application diagrams are included to show the types and spacing of luminaires proven most effective in actual use. Fluorescent, mercury, and filament luminaires are discussed. The bulletin lists a number of recommendations for lighting hazardous areas on modern, high-speed turnpikes and expressways. Sections dealing with fundamental aspects of roadway lighting and fundamental design objectives are included along with three full pages of lighting reference data dealing in lay terms with the technical aspects of the problem.

—AE—

FASTENERS—Lion Fasteners—for quick, positive locking of removable sections—are the subject of a new twelve page, two-color catalog just released by Southco Division, South Chester Corp. The illustrated catalog describes in detail the three main types of quarter—turn fasteners—No. 5, No. 2, and Type H—and their applications for general, light, or heavy duty, including their use on aircraft. It includes information on specifications, head styles, installation procedures, strength characteristics, and other information of general interest to the user. Free copies of the catalog are available by writing Southco Division, South Chester Corporation, 200 Industrial Highway, Lester, Pa.

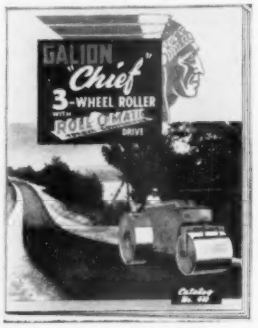
—AE—

INSULATED STACK—A comprehensive, new 80-page literature file on the Van-Packer Pre-Cast Insulated Stack is now available to architects and engineers on request from Van-Packer Corporation, Bettendorf, Iowa. This complete, bound file is indexed into 4 categories: 1) General Information, 2) Specifications and Ordering Data, 3) Installation Instructions, including guying methods, and 4) Performance and Physical Characteristics. The first category includes detailed description, advantages and photos of the Van-Packer Stack. Thirty-two pages of test data are included in the fourth category.

—AE—

AIRCRAFT ACCESSORIES—The Stratos Division of Fairchild Engine and Airplane Corporation has issued an illustrated, four-page booklet on its complete accessory systems for basic aircraft services. The new booklet describes, with model numbers and pictures, Stratos Aircraft pressurization and air conditioning systems, high and low pressure compressors, valves and controls and a complete group of pneumatic accessories. Entitled "Complete Accessory Systems for Many Basic Aircraft Services," the new booklet may be obtained without charge by writing to Stratos Divisions, Fairchild Engine & Airplane Corporation, Bay Shore, Long Island, N. Y.

GRAPHITE IN ATOMICS—Graphite for atomic energy applications is described in a new six-page leaflet available from National Carbon Company, a Division of Union Carbide and Carbon Corporation. A tabulation of typical properties of graphite illustrates that it combines certain advantages for the construction of such atomic equipment as moderators, reflectors, shields, thermal columns, and molds and crucibles. Graphs present data on strength-to-weight ratio and tensile strength as a function of temperature. For a copy of catalog section S-4905, "National" Graphite for Atomic Energy Applications, write National Carbon Company, Dept. E, 30 East 42nd Street, New York 17, N. Y.



3-WHEEL ROLLER—A highly illustrated catalog is now available on the new Galion "Chief" ROLL-O-MATIC 3-Wheel Roller. All important features of design and construction are presented in detail. These include the ROLL-O-MATIC torque converter drive, improved disc-type brake, hydraulic steering, enlarged operator's platform, cabcontrolled differential lock on rear wheels, complete accessibility of all parts, simplified controls, etc. A free copy of Catalog No. 410 is available from any Galion distributor or direct from The Galion Iron Works & Mfg. Co., Galion, Ohio.

—AE—

PLASTIC PIPE—Two types of unplasticized polyvinyl chloride pipe and fittings are described in a new product bulletin issued by the Alloy Tube Division of The Carpenter Steel Company, Union, N. J. One type is a normal impact grade, and the other a high impact grade. The bulletin gives a general description of both types, along with their specific advantages. Applications are listed by industry and process.

—AE—

WELDING—The Lincoln Electric Co. has revised its "Weldirectory for Mild Steel and Low-Alloy High-Tensile Steels" (SB-1351) to include newest iron powder and other electrodes. This bulletin provides a description of each electrode, its physical properties and chemical composition, recommended welding procedures, and operator's reference table, and a list of typical applications for each electrode. Request from The Lincoln Electric Co., Cleveland 17, Ohio.

SHELVING CATALOG—Tips on how to plan installations and order shelving in more than 1,000 combinations to fit any storage or supply-handling need are summarized in a new catalog published by the Hallowell Division of the Standard Pressed Steel Co., Jenkintown, Pa. Drawings of basic units and accessories, suggested floor plans, a shelf-capacity chart and photographs of completed units make the catalog a useful guide to planned storage.

—AE—

DEMINERALIZATION — Graver Water Conditioning Co., has available, without obligation, Technical Reprint T-140. A 24-page, profusely illustrated article on all the phases of demineralizing, it discusses in detail the advantages and disadvantages of this process for today's power plants. The paper considers some of the developments, trends and applications of both multi-bed and mixed-bed ion exchange and uses several case histories as examples. A complete comparison of the two types of demineralizing systems is presented as well as some of the important factors that go into the chemical and mechanical design and operation of these units. For further information, contact: R. S. Lewis, Advertising Manager, Graver Water Conditioning Co., 216 West 14th Street, New York 11, N. Y.

—AE—

HEAT EXCHANGERS—Bulletin M-306 on "Lummus Standard Heat Exchangers For Process Industries" has just been issued by The Lummus Company Heat Exchanger Division, 385 Madison Avenue, New York 17, N. Y. This new 18-page brochure includes: a description of the design specifications and construction details of these standard units; tables of effective surface area available in the various units; tables of overall dimensions for these exchangers; and thermal design data, with tables of film co-efficients, pressure drops, fouling factors, and tube characteristics necessary to solve the basic heat transfer equations.

—AE—

WIRE—"Copper Wire Tables," 4th Edition, National Bureau of Standards Circular 31, issued January 27, 1956, 2 line cuts, 19 tables, 30 cents. (Order from the Government Printing Office, Washington 25, D. C. These tables are of special importance to workers in the copper industry, electrical engineering, and related fields concerned with the distribution of electrical power. All data is expressed in both English and metric units. The American Wire Gage as presented in this publication is formed by geometrical progression. The circular also contains a number of very simple formulas for computing data for any size wire.

—AE—

SOIL MECHANICS — Manu-Mine Research and Development Company of Reading Pa., and its affiliate, American Testing Laboratories, Inc., of Lancaster, Pa., have just issued a brochure describing services available to highway and airport engineers. The booklet itemizes its various facilities, which include assistance in site location by preparation of geologic and soil maps, layout of soil exploration programs, exploration for natural construction materials, assistance in drainage problems, exploratory drilling, and soil and rock sampling.

These listings are informational only and are not an endorsement of the products, nor of the manufacturer's claims.

Meeting

(*Continued from page 45*)

ate Civil Service Committee in which NSPE pointed out that a number of the positions and grades which would be affected by the bill are filled by professional engineers. It was pointed out that the problem of retaining qualified engineers in the Federal service is an important one, particularly citing the disparity in salary between engineers in the Federal Government and in private industry. Statistics from the NSPE salary survey were cited to illustrate the point, with particular attention on the economic findings applicable to the higher grades in industry and in the Federal Government. NSPE recommended an amendment to the bill, however, to increase the amount proposed for Grade GS-17. The bill now provides an increase of only $215 for that grade. The House passed a companion bill (H.R. 7619) last year. The Senate bill is pending in committee.

OUTSIDE ENGINEERING PRACTICE BY TVA

A pending bill to authorize TVA to issue revenue bonds to finance its further power facility expansion contains a provision which would permit TVA to provide "free" engineering services to non-TVA organizations. NSPE entered a sharp protest against this provision of the bill and its views received careful attention from the Senate Subcommittee at the hearings. Since that time further contact with members of the Subcommittee has reminded them of NSPE's strong opposition to the objectionable provision. To date the basic bill has not been reported by the Subcommittee although a number of executive (closed) sessions have been held regarding it. There is some reason to believe that the entire bill will die in the Subcommittee, in which case the NSPE objection to the particular section will be satisfied. However, this situation will be monitored closely and appropriate action taken to further oppose the objectionable section should it be necessary.

Know Your Society! Read These National Committee Reports.

FEDERAL LEGISLATION RE SCHOLARSHIPS AND OTHER AID TO FURTHER ENGINEERING EDUCATION

A very large number of bills have been introduced in Congress which would in various forms establish Federal programs of scholarships, loans or grants for the purpose of educating larger numbers of engineers and scientists. Many of these bills are sponsored by responsible and influential members of Congress. All of them have been reported in the *Legislative Bulletin* or in the AMERICAN ENGINEER. Recently, the Research & Development Subcommittee of the Joint Committee on Atomic Energy held hearings on the engineering and scientific manpower situation and many suggestions were proposed for various forms of Federal programs. This was a non-legislative hearing in that it was not based on any particular bill or bills. NSPE participated in these hearings through testimony of past Vice President Cherry L. Emerson, who is retired as vice president of Georgia Tech.

Board Action: Report Accepted.

MEMBERSHIP

In accordance with the recommendations of this Committee at the spring meeting, plans are being initiated to conduct the membership mailing campaign to six representative states (one in each of the geographical areas). This program will take a considerable amount of planning and administration; and in order to get the benefit of its full effectiveness, it was determined to have the first mailing go out shortly after Labor Day. To the directors of the states involved, it is suggested that the need for state co-operation cannot be over-emphasized and that directors encourage state officers to co-operate fully in this matter.

The Membership Committee met on February 18, 1956, following the spring meeting of the Board of Directors. At this meeting, a number of recommendations were forthcoming; and while they do not require action of the Board, are presented for information.

1. The Membership Committee heartily endorses the employment of an additional staff member, whose primary duties would be to assist states and chapters in organizing chapters, developing programs, obtaining new members, and in general offering assistance where needed.

   The Membership Committee will make recommendations concerning the proposed activity of this staff member and he should be of tremendous assistance to the Committee in connection with the mailing campaign which is planned to be instituted shortly after Labor Day.
2. The problem of delinquent members received considerable attention, and this Committee is now developing a small leaflet setting forth the services that the member would lose if he were dropped from NSPE. This leaflet will be distributed to states and chapters, and it was further recommended that the leaflet should be distributed when the member is in arrears for six months rather than wait until he becomes delinquent.
3. The Committee felt that NSPE has a wealth of material and publications available to members which were generally unknown. It was suggested that a subject listing of NSPE publications be published in the AMERICAN ENGINEER. This was accomplished in the March issue of the magazine, and it is hoped that it may be repeated again in the fall.
4. The Committee is now developing a new membership kit which will outline a procedure for conducting membership campaigns and will be of immense assistance to chapters.

Board Action: Report Accepted.

PUBLIC RELATIONS

A. Public Relations Manual:

Among our state societies and especially among chapters there is a wide range of needs and requirements for an effective public relations program. Only experience can tell us whether a single manual can satisfy the requirements of small chapters and large chapters, chapters in rural areas and chapters in metropolitan areas.

The manual made available for distribution in mimeograph form must be regarded as a draft. It should be modified and expanded, if necessary, to answer the needs of all our units—not merely the needs of the majority. It is hoped, therefore, that people who use it will send in their comments and suggestions, and that necessary changes and clarifications will be entered on a master copy at the headquarters for a final reproduction in print.

B. Assignments Relating to Secondary Schools:

Three assignments dealing with secondary education have been referred to the Public Relations Committee jointly with the Education Committee. These assignments constitute Program for Redevelopment of Engineering Preparation (PREP). They are:

1. Improved teaching of mathematics and sciences for gifted students.
2. Providing methods, techniques and legislation (where necessary) to permit retired professional engineers and other qualified people to teach high school mathematic and science classes on regular part-time schedule.
3. Promotion of mathematics, science, and engineering clubs on high school level.

It is recommended that this project be assigned to a spe-special subcommittee of this Committee, or that a special committee be appointed for this purpose.

C. Surveys by College Public Relations Classes:

This Committee recommended a year ago to obtain the cooperation of public relations classes in local colleges in each area to obtain surveys of local opinion on matters pertaining to engineers and engineering. A description of general survey projects conducted by public relations students at the University of Texas was attached to the report.

At the annual meeting of the Ohio Society on March 23-24, 1956, a report was made and results presented of a local survey successfully carried through by University of Ohio students. Plans are being made to extend this survey to the entire state. All areas in which such surveys may be planned or under way are requested to advise our Committee.

D. Public Information Activities:

Essentially all the public information releases to newspapers, periodicals, and to the members regarding the Society policy and other activities, are prepared and issued by the staff. The Committee cannot ordinarily participate in this work, where exact timing is essential.

Considerable publicity was obtained, through printed material and photographs, for the dedication of the new headquarters building in Washington, D. C. The Public Relations Newsletter was continued in an effort to stimulate public relations projects at the state and chapter levels.

The National Society received some valuable publicity in the publication of a letter to the editor by President Neff in the April 13th edition of the *New York Times*. The letter described the efforts of the NSPE in promoting better high school training in math and physical science courses.

Good communication is an all important factor of a successful public relations program, yet, it can be definitely established that some state and chapter public relations committees did not receive the reports of this National Committee, and were not aware of the various areas of public relations activities open to them.

As a National Committee we do not speak to an audience. *We*

must speak to a parade. We must repeat some of the things said year after year—so that those who are in the front now may know what the Society is doing—and what they can do.

Board Action: Report Accepted.

REGISTRATION

The foundation of all registration procedures in any state is the State Registration Law.

There is a very wide divergence between the requirements of the various laws. This difference is so evident that it is astounding. With these existing conditions it is difficult to understand why registration by endorsement is as successful as it is at the present time. This is due only to the liberal understanding of the state boards who pass on the application of an engineer registered in another state.

The state laws must contain similar requirements if uniformity is ever to exist. Then the policies and procedures of all state boards must fall in line. When those goals are reached all engineers will be registered under the same requirements and conditions and registration by endorsement will be made easier. Then we will have a semblance of national registration.

What Is NSPE Doing? Read These National Committee Reports.

For many years the Model Law has been the guide to all writers of state engineering registration laws. It provides for the registration of not only engineers but architects and land surveyors as well. To cover all of those different fields it must, of necessity, be long, difficult to read and hard to interpret. It has, however, served as an excellent guide for a number of years.

At the meeting of the Executive Committee in Memphis last fall this situation was discussed. This Committee recommended to the National Board that the Registration Committee be directed to draft an "Ideal Engineering Registration Law," that after it is approved by the Board it be submitted to all interested societies for their approval or comments. The Board approved this recommendation.

The first draft of the "Ideal Engineering Registration Law" was written soon after the Memphis meeting and was submitted to all members of this Committee for a study and comments. At a special meeting of the Committee on April 6 it was reviewed, added to, deleted from and changed to conform to the united opinions of the Committee members as well as our legislative analyst.

We are submitting it (the draft) to you for your approval. This may not become the final draft for it may be necessary to make minor changes after comments are received from other interested societies and even individuals. We do ask you to approve it in its present form so that it can be submitted to others for their approval or comments. Final approval will be requested should any changes be made from its present form. . . .

Board Action: Report and draft received for information and distribution to Board members, state societies, other engineering societies and interested individuals for their comments and suggestions.

YOUNG ENGINEERS

The new plan of development of the young engineers program which was adopted at the last Board of Directors meeting has received considerable comment from our members. The new proposal in the adopted plan of encouraging the young engineers in each chapter to get together as a group, discuss their own needs and plan their own projects, seems to be favorably received. But the most significant comment received about this new plan came from one of our officers when he reminded the Young Engineers Committee that this new plan of development is an excellent plan, but we have been having excellent young engineers plans for a good many years, but we never did anything about it. We have accepted this statement as a challenge for action.

At the suggestion of President-elect Rhinehart, the Young Engineers Committee held a meeting in St. Louis on April 11 for the purpose of setting up a plan of action. This committee meeting was attended by President-elect Rhinehart, Executive Director Robbins and all of the committee members except one. President-elect Rhinehart asked that we get down a definite program for putting the new young engineers plan into operation. We are pleased to present here the program which the Committee formulated.

The first action we are asking the Society to take is that the month of November be designated as Young Engineers Month and that local chapter programs for the November meetings be devoted to the young engineers. Chapters are urged to call on their young engineers to make the arrangements for the meeting, and the program should be one of direct interest to them.

The next action needed will be requested in a letter to be sent to each state president asking him to appoint a state Young Engineers Committee in states that do not already have them. The new plan to organize the young engineers should be placed in the hands of this state committee. The state presidents will also be asked to set up separate conferences for the young engineers in their state annual meetings.

The next point of action, and certainly the place where action is vital, is at the local chapter level. A letter will be addressed to each chapter president attaching a copy of the plan and asking him to discuss the plan with his executive committee and to determine a course of action.

National Society Action Program for Young Engineers

1. Letter to state officers and chapter presidents and secretaries (June 15, 1956) to:
   a. Announce November as Young Engineers Month.
   b. Ask chapters to call on the young engineers in the chapter to take charge of their November meeting.
   c. Suggest they invite a good many Junior Members and young professional engineers not in the Society to attend the special Young Engineers Month meeting of the chapter.
2. Letter to state presidents (September 15, 1956) requesting state societies to:
   a. Appoint state Young Engineers Committees in states that do not have them.
   b. Set up a special meeting of the young engineers at state annual meetings.
   c. Encourage and assist chapters in organizing their young engineers. (Copy of the letter to chapters to be enclosed to state presidents).
3. Letter to all chapter presidents (October 1, 1956) to:
   a. Call attention to the sheet "Chapter Action to Organize Young Engineers," and ask their best effort in putting this into effect. (This sheet for Chapter Handbook).
   b. Emphasize the first important action is to prepare a list of the Junior Members and young professional engineers in the chapter, appoint a chairman from the group and an older coordinator.
   c. Place the "Young Engineers Action Program" in their hands and urge them to call the young engineers together and get their program started.
   d. Consult with their state Young Engineers Committee for direction and help.

The young engineers are urged to promote chapter activities in the following areas:

1. Educational courses which the junior engineers and young professional engineers need and desire. Such courses may be arranged for larger groups of young engineers and Junior Members as well as Society members.
2. Professional training programs and inculcation of professional concepts in young engineers.
3. Training programs in other fields, such as industrial management, supervisory training, employees relations, labor laws and other appropriate subjects.
4. Membership promotion among Junior Members and young engineers.
5. An annual Young Engineers Night program at a regular meeting of the local chapter during the month of November.
6. Special studies of problems facing young engineers, recommending to appropriate committees of the chapter those policies and actions which will reflect the attitude of young engineers.
7. Programs which are of special interest to the young engineers.

The chapter president will appoint a chairman from the young engineers and a young engineers coordinator. The young engineers may elect a vice-chairman and a secretary and may appoint special committees and their chairmen.

The young engineers will confer with their local chapter officers in planning and promoting social activities for the young engineers and their wives and friends. The month of November has been designated as Young Engineers Month and special effort should be made to strengthen and expand the organization of young engineers during that month.

Board Action: Report Approved.

Rhinehart

(*Continued from page* 12)

sibility on the part of both management and employees to recognize and cultivate this professionalism. They show how necessary it is that employees give honestly of their time and talents to their employer and recognize that the problems of the employer are also the problems of the employee. And, of course, the criteria show how important it is for a professionally trained individual to work toward continuing his professional growth throughout his career.

The development of such employment practices criteria, and the widespread circulation of them throughout industry and the field of engineering, will undoubtedly be of considerable value for the engineering profession. By a thoughtful study of these criteria, a young graduate engineer might well be influenced to take immediate steps which could lead to a definite expansion of his professional outlook. The National Society will continue its interest in the problems of the engineer in industry and there are several projects in this general area scheduled for this coming year.

THE critical engineering manpower situation is another phenomena which has attracted the serious attention of NSPE officers and committees. Society representatives have testified before Congressional committees regarding this situation. A number of carefully thought out remedial approaches were given to the committees. The National Society has recognized that the problem is one that demands a long range solution. The extensive and favorable newspaper attention given to the Society's efforts to stimulate better training in math and the basic sciences at the high school level points up the degree of public acceptance of the NSPE approach. We certainly must maintain our technological superiority if we are to remain in a position of world leadership. The achieving of an increase in the number of engineering graduates and at the same time increasing their competence is a problem which reaches from the time a boy enters school to the time of his graduation from an engineering curriculum. Failure to concentrate on mathematics in all grades and on the sciences in junior and senior high school will leave a student ill equipped to enter a strenuous engineering curriculum. The gravity of this problem in terms of the protection of the basic freedoms for which our nation has fought so hard demands that there be a real effort made in behalf of greatly increasing the quality and quantity of engineering school graduates. This is a problem in public service which our profession must not side step. The National Society this year will devote even more attention to this problem. But it should be emphasized that the real nature of the engineering manpower situation is to be found in the nature of secondary school education.

Another subject which will continue to receive close study by the National Society is Federal legislation. The most recent report of the Legislative Committee includes an impressive list of bills or proposals before Congress which have direct bearing on the practice of engineering as a profession.

While it would take a very large amount of space to describe the activities of the National Society, the basic philosophy behind our organization can be summed up in a few words—service to the profession and to the public. We are going through a period in these years when our profession, long little noticed and generally unappreciated, is moving into some of the most dynamic areas of human endeavor. Man is gaining control of his environment at an ever accelerating rate and the professional engineer is in the foremost ranks in this activity.

Ours, then, is the responsibility of keeping our Society worthy of our profession. We must make whatever efforts are necessary to build up our membership. We must continue the projects already undertaken by the Society. We must stand ready to meet new situations as they develop. And above all, we must never lose sight of the high principles which are implied in the practice of engineering as a profession.—***End.***

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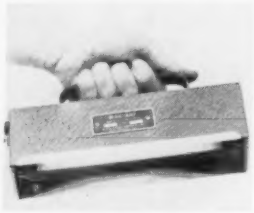

New, special-purpose ultra-violet lamp, BLAK-RAY Model BLF-6, for better observation of low-grade fluorescence, particularly in the critical areas of pale blue, light green and red, has been announced by Black Light Corporation of America. With its peak emission at 3660 angstrom units, the BLF-6 is especially valuable for sanitation inspection, criminology, chromatography, oil analysis, medical diagnosis—in fact, anywhere that subtle shadings in what otherwise would be termed "weak fluorescence" areas must be observed.

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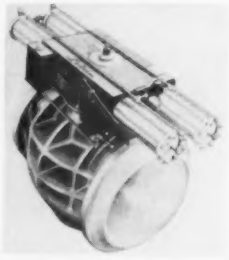
QUAD ACTUATOR — Item 5



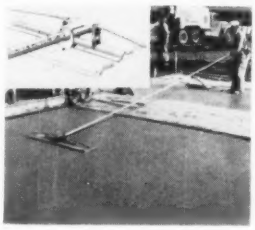
Built to operate high-pressure plug and ball valves up to 36" in size is the Ledeen Quad Actuator, just introduced by Ledeen Manufacturing Co. Features claimed are: balanced torque delivered to valve stem through four-cylinder operation: gas and oil systems entirely separate. No gas-oil interface; easy field installation without modification of plug valve; wide range of torque capacities, with a variety of control systems.

This column describes new products of general interest to professional engineers. For further information, fill in the coupon provided and mail to the AMERICAN ENGINEER.

These listings are informational and are not an endorsement of the products, nor of the manufacturer's claims.

CAM-TILT BULL FLOAT — Item 6

A new type bull float is announced by Creative Metals Corp. Gets the name "cam-tilt" bull float from a cam located in the strong-back. By simply twisting handle the tilt of the float is instantly altered to give any desired tilt. Handle twist adjustment compensates for length of handle, which telescopes one section within another to give any length from twelve to twenty-two feet.



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DISPOSABLE FIBRE CONCRETE FORMS — Item 7

The Delta Company has introduced DELTAFORM, designed for inexpensive and simple forming of piers, short columns, column footings or pads. Packed flat in convenient bundles DELTA-FORMS are extremely light, easy to handle and require practically no storage space. They are set in seconds . . . just open, stand in place and pour. No bracing is necessary. Just set it and forget it. No capital investment in forms, no form handling and hauling, and no form maintenance.

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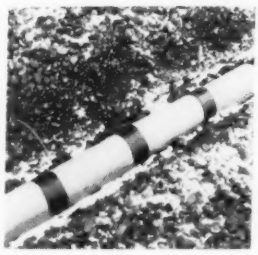
TILE CLIP — Item 8

BOCO Industries announces a new development in the field of tile drainage; a plastic clip designed to space and cover the joints of drain tile. BOCO Clips have two lugs which fit between adjoining tile and take the guess work out of spacing. When the adjoining tile are butted against these lugs they are automatically spaced $\frac{3}{8}$" apart. (This spacing was specifically recommended by engineers of the United States Public Health Service.) A secondary function of the lugs is that they make it almost impossible for the clip to fall out of position during the back-fill operation.



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QUICK-SETTING FLOOR PATCH — Item 9

Development of a new floor patching material which can be trucked over within one hour after application was announced recently by the Building Products Division of L. Sonneborn Sons, Inc. Called Sonopatch, the new material is described as a specially-formulated non-bituminous powdered mixture which "sets up" in thirty minutes under normal drying conditions. Said to yield compressive strength of over two thousand pounds per square inch after a few hours, and is ultimately capable of supporting loads of more than ten thousand pounds.

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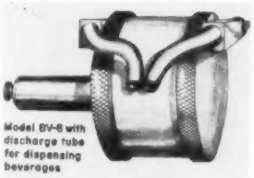
POSITIVE DISPLACEMENT VALVE — Item 10

A new method of accurately measuring and controlling flow of liquid or gases has been announced by The Punxsutawney Co. Incorporating the precise and accurate measuring advantage of a cylinder and piston arrangement with the flow controlled by a hydraulic brake, the Positive Displacement Value offers a wide combination of measuring or dispensing facilities in any pre-determined volume. It permits measurement and dispensing from 2 sources to 1 common discharge, from 2 sources to 2 discharges or from 1 source to 1 discharge.



Model BV-6 with discharge tube for dispensing beverages

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Dr. G. E. Moore, B.S., Syracuse (1935), Ph.D. in chemistry, Stanford (1940), came to the General Electric Research Laboratory in 1946 from Los Alamos, N. M. He has specialized in the fields of combustion and rocket propellants and is the author of various papers on thermochemistry and thermodynamics. He has been head of the Laboratory's combustion research unit since 1955.

Research for better rockets

General Electric's Dr. George E. Moore applies basic studies of combustion to development of propellants

Behind the use of rocket motors in such devices as guided missiles and earth satellites is a history of painstaking research into the fundamentals of *combustion.* Dr. George E. Moore's contributions to this comparatively new science have included calculations of the effect of combustion-chamber size and shape on rocket efficiency, innovations in the use of fuels, and new understanding of the general chemistry of rockets. He and a group of General Electric associates have devised a new type of "hybrid" motor—using both liquid and solid fuels—that is a model of simplicity and efficiency in rocket propulsion and promises to play a significant role in what is certain to be a big future for rockets.

As General Electric sees it, providing individual scientists with freedom and incentive to solve the problems of research is part of solving the larger problem of how we can all live better, with better materials and better products with which to work, better jobs, and extra human satisfactions in terms of what people expect and want in life.

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